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THE GARDEN MAGAZINE

Devoted to Planting and Managing the Grounds About the Home and to the Cultivation of Fruits, Vegetables and Flowers

Volume XXVIII

August, 1918, to January, 1919

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GARDEN MAGAZINE

AUGUST
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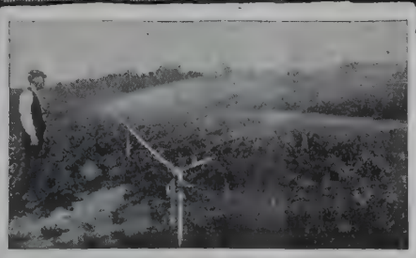

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are new and novel, distinct and different and equal or superior to the world's best. Our culture and our climate impart to them the extreme northern vigor and an iron hardiness. If you want true Brand Peonies, why not order them direct from Brand. If they come from Brand, they must be good. Write us TO-DAY for descriptive price list.

BRAND PEONY COMPANY

540 Lumber Exchange Minneapolis, Minnesota

Farr's Gold Medal Irises

Mysterious as the opal, its structure more wonderful than the orchid, the beauty of the Iris is wholly ethereal. If you yield to its magic spell it will lead you across the border into a wonderland of delight.

The Iris, or Rainbow flower, like the rainbow itself glistening in the sun, makes you dream of faraway things, and as a "Messenger from the Queen of Heaven to mortals on earth," carries before you a vision of hope for a new day.

The embargoes which have been placed (owing to lack of transportation) upon bulbs and other foreign plants, really compel us to make a greater use of our own American grown plants. Irises will fill the vacancy made in the spring garden by the absence of the imported bulbs. They may be grown easily by any one and in any situation, giving their blooms with such abundance the first season after planting, that they themselves almost seem to solve the perplexing question of labor in the garden.

That the gardens of America may be more cheerful, the supply of outdoor flowers increased, and garden tasks reduced to a minimum, I have arranged

Farr's Special 1918 War Garden Collection

TWELVE GOLD MEDAL VARIETIES FOR $5

Made up of my own new seedlings and novelties, which were awarded the Gold Medal at the Panama Pacific Exposition, and listed in my catalogue at fifty cents to one dollar each. No ordinary or common sorts are included in this collection.

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Complete descriptions of my new seedling Irises and upwards of five hundred other varieties will be found in ***Farr's Hardy Plant Specialties,*** (1918 edition), a book of 112 pages, with many illustrations. In addition to Irises the book describes the most valuable collection of Peonies in the world. If you do not have a copy of this edition send for it to-day.

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Having been awarded the Gold Medal by the American Peony Society,
Cleveland, 1918
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For Sale at
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They are put up in various sizes to meet the requirements of different types of gardeners. All are guaranteed to do effective work. For further particulars apply to manufacturers.

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Harris' Prize-winning Peonies

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Our special Evergreen booklet mailed on request; write to-day.

ROSEDALE NURSERIES
S. G. HARRIS
Box G TARRYTOWN, N. Y.

THE GARDEN MAGAZINE

AUGUST, 1918

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LEONARD BARRON, EDITOR

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HERE, at Eureka, California, we are conducting what is unquestionably one of the most unique horticultural establishments in the entire entire world. Flowers, Shrubs, Trees have always been a hobby with us. But little did we think, years ago when the *Cottage Gardens Nurseries at Queens, Long Island*, were being developed, that some day we would grow millions of so-called "Dutch" bulbs in the fertile virgin soils of California.

How Holland Came to America

And little did quaint Holland think, a few years ago, that the World War would almost bring a revolution to one of its most cherished industries, yet, since the War began, the area devoted to growing *Hyacinths, Tulips, Daffodils*, in Holland has been reduced to less than one-half, and the end is not yet. Moreover, the *Belgian Azalea industry* which meant so much to Americans, was almost wiped out over night.

Initiative that Saved the Day

Fortunately, about two years prior to the beginning of the War, we had been investigating and experimenting at *Eureka, California*, in order to determine what products could be grown to advantage in this climate. The War but hastened the maturing of the plans. To-day, after three years of actual working operations, we grow a bulb and plant product which in many respects is far superior to that formerly imported.

Azaleas, Rhododendrons, Hyacinths, Tulips, Daffodils, etc., in all those varieties most in demand with America's gardeners are grown here under nearly ideal conditions. They are also available in large enough quantities to save the day for the thousands of gardeners who cherish this type of plants

80 Acres in This Huge Plant Factory

In the carrying out of our plans we did not recognize limitations. When the work outgrew one farm, another was added. No effort was spared to secure the right kind of land; no effort was spared to make the soil just right. The work is carried on to-day in our *Eden Nursery*, the *Cottage Garden Bulb Farms*, and the *Cottage Garden Jersey Farms*, each devoted to yielding that type of product for which it has been best equipped by nature.

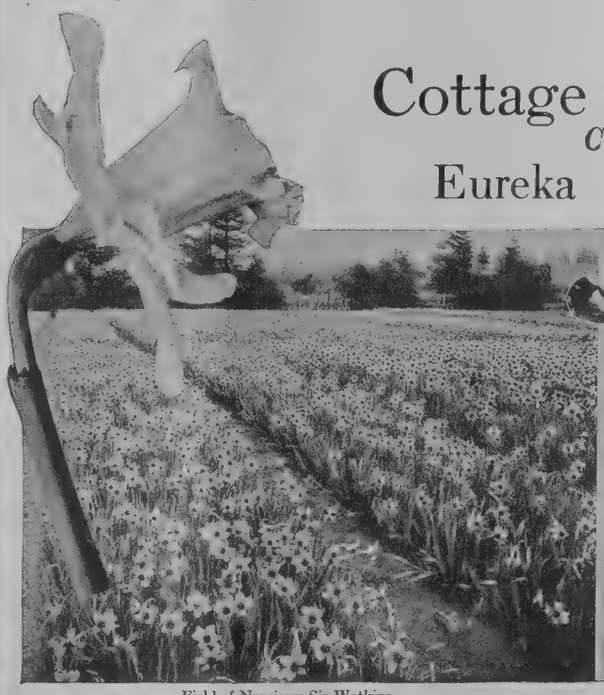
Special Catalogue and Price Lists Mailed FREE on Request

Please look upon this merely as a preliminary announcement. The story of this, a newly founded American Industry, cannot be told within this space. The pictures shown will help to convey to you only an idea of our work. Let our catalogue and prospectus acquaint you further with what has been done, and what will be done to *make America a vast garden of beautiful flowers and plants.*

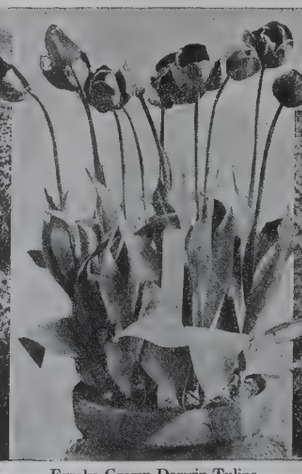
Cottage Gardens Nurseries, Inc.

Charles W. Ward, President

Eureka California



Field of Narcissus Sir Watkins



Eureka Grown Darwin Tulips

50,000 Hyacinths in this Block

The Garden Magazine

VOLUME XXVIII AUGUST, 1918 NUMBER 1

AMONG OUR GARDEN NEIGHBORS

Make Your Decision Now

ALARMED by what appeared to them as the apathy of the people toward making food gardens, representatives of the State Council of Defense, the Chamber of Commerce, and of some of the leading seedhouses met together in Chicago on April 12 for the purpose of devising some countervailing activities. That was some months ago and events as they developed later exposed clearly the utter baselessness of the scare that those worthy gentlemen then felt.

In America to-day gardening is passing through an expansion without parallel in world's history. Previous wars generally have had a totally opposite effect upon horticulture than has the present conflict. They have always stood for a *decline* of gardening, because the value of home gardens as a means of increasing the general food supply was not appreciated.

The President's vision and recommendation turned this war into the greatest single "boost" that gardening has ever experienced! It stimulated all concerned. It brought forth a seed supply of staples adequate for all needs. It brought forth an enthusiasm the like of which the most optimistic never expected. It was responsible for the invention of a remarkable lot of labor-saving devices which transformed gardening operations from a drudgery into a delight.

Millions of food gardens have been born. That the flower garden of aesthetic joy should temporarily have been eclipsed by the magnitude of food gardens is but a natural, though surely a passing, phase. Men and women appreciate the need of flower gardening as well as of food gardening. Its practice is advocated strongly even now in preference to no gardening at all.

Perhaps the pendulum is swinging back. Many, whom the first enthusiasm brought into the ranks of vegetable gardeners, may be wavering whether to carry on that work another season or whether to take more kindly to some branch of floriculture as a refuge and rest from strenuous life. Each type of gardening has its possibilities and limitations. The most conspicuous limitation in connection with flower gardening is the element of time.

A good flower garden cannot be created in a hurry, less or more time is required according to whether the start is made with seeds, bulbs or plants. *The* time to start Iris, Peony and Phlox gardens, or any other herbaceous perennial gardens for that matter, is NOW, if you would want to enjoy the flowers next spring.

Decide NOW what sort of garden you want another year. Remember that evergreens, shrubs, trees, hardy plants of all kinds may be planted from now on until hard frosts. Some of them, like the evergreens, will begin to give returns immediately, while the deciduous and herbaceous plants will do their part next spring to make the garden the true refuge from the hard strain of the present times which all nature intended it should be.

Flowers in War Time

FOOD will win the war, but food is not the goal. It is only ammunition. This war is for the souls of people and of peoples. And while we raise potatoes and cabbages to feed the flesh, the spirit must not be forced to wait till the second table. The soul should sit at meat along with the body.

Shall we banish flowers from our gardens? Can we afford to cut music out of our war programme? Cabbages are of the rank and file of the fighting forces, but Poppies are the regimental band. Flowers are for solace in the serious business of hoeing cabbages and killing the worms thereon. Potatoes we need for food, but Pansies we must have for thoughts.

It would be to Germanize our land if we cut gay color out of our war gardens and left the gardener only the drab business of serving tables. The wondrous structure of the cabbage may be worth long meditation; but we do not meditate upon it. The Rose compels meditation. Flowers on the mantel are incense offered to the soul of the house—the home. If Germany had thoroughly subdued America a home would not be needed. A house and a cabbage patch would be sufficient.

War is sad business, but it needs no professional landscape crêpe-hangers. Dots and dashes, belts and splashes of color are needed in our landscape more than ever. We owe a whole season of garden cheer to the eye of the passerby in our neighborhood. Dooryard color is Red Cross bounty. It is first aid to the war-sick mind and the broken spirit. By taking thought the householder can have a succession of color growing about his house from spring frost to autumn frost, and this without subtracting at all from the time he should give to the food garden. The heart will find spare moments for flower culture. Keep the home gardens blooming.—*Minneapolis Journal.*

The Food Administration Says:

¶ Gardeners of America, serve your country by raising more foodstuffs than ever before. Urge your patrons to eat fruits and vegetables fresh in season, instead of buying canned goods. And urge them to can, against winter needs.

¶ CAN! CAN! CAN! That is the appeal of the United States Food Administration in this hour of food shortage. Products in a country as large as ours are too varied to single out certain ones and advise that they be preserved. In general, can whatever fruits and vegetables grow in your vicinity.

¶ Can for yourself and for others. One Illinois woman last year planted an acre and from its produce canned enough to supply her own home and two charitable institutions all winter.

¶ Under the law, home preserved foods cannot be purchased or accepted as gifts by the Government, because absolute uniformity in ingredients and containers cannot be obtained, and inspection of small lots would be too difficult. Nevertheless, there is a way for patriotic housewives to give direct aid to the men in the trenches.

¶ Commercial canning companies will be strained to the limit to supply our armed forces, the Allies and the civilian population of this country and Europe. Every can put up in the home will mean one can less to buy at the grocer's. It will mean the release of that can at the grocer's for our men in uniform or for export. To can your own goods instead of buying them is like handing over the exact equivalent to the soldiers.

¶ The Food Administration will permit housewives to have the sugar they need for canning. Do not use more than is needed to preserve, however. Avoid recipes calling for extravagant use of sugar.

GARDEN AND CAN!

Fuel For Greenhouses Reduced

THE United States Fuel Administration during the last few months has held several conferences with representatives of the commercial florists of the country. The florists have shown full appreciation of the problem involved in providing supplies of fuel to florists at a time when there is a shortage for war industries.

It is the hope of the Fuel Administration that sufficient reduction in fuel consumption of the lesser essential industries can be obtained without demoralizing any of those industries which, like the florists, are highly esteemed by the public. It has been agreed that a 50 per cent. curtailment in the use of fuel, which, in general, means a curtailment of hothouse space, will permit the florists to preserve their most valued stock and keep their business organizations intact during the war.

As a result of these conferences, the United

States Fuel Administration issued under date of April 24 an order governing the use of fuel by florists both public and private, during the coming year. The original order reads:

REGULATION RESTRICTING FUEL CONSUMPTION BY FLORISTS

1. That the term "florist" in this regulation shall be construed to include any person, firm, association, or corporation, engaged in the growing of flowers, plants or winter vegetables, but is not intended to and shall not include the growing of plants' for transplantation to produce summer vegetables.

2. That the term "greenhouse" shall be construed to mean any building, private or public, in which artificial heat is used to aid in the growing of flowers, plants or winter vegetables.

3. That no florist, as defined above, shall at any of his greenhouses consume, burn, or use fuel of any description, including coal, coke, fuel oil, and natural gas, or other petroleum products, or use power derived from any such fuel, for or in connection with the growing of flowers, plants, or winter vegetables, as above defined, during the year beginning April 1, 1918, and ending March 31, 1919, to an amount in excess of fifty per cent. (50%) of the average annual amount of fuel consumed at such greenhouse for or in connection with the growing of plants, flowers, and winter vegetables, during the period from April 1, 1915, to April 1, 1918.

4. That whenever it appears that any particular greenhouse was not in existence on April 1, 1915, then and in such case the period during which it has been in existence prior to April 1, 1918, shall be considered and used as a basis in determining the quantity that would constitute one-half of the average annual consumption of fuel of such greenhouse.

5. That any florist, as above defined, owning and operating more than one greenhouse for the growing of plants, flowers or winter vegetables, may combine such greenhouses and use in such combined greenhouse the fuel allotted to each of such greenhouses by this regulation, provided the amount of fuel so used at such combined greenhouse shall not be in excess of one-half of the fuel consumed by all of such greenhouses when operated separately.

6. That whenever two or more florists find that a further fuel economy would result from using in one greenhouse the allotments of fuel as provided by this regulation, to two or more greenhouses, then upon application to the United States Fuel Administration and receiving a permit therefor, such florist may use the aggregate allotment of fuel to their respective greenhouses at one or more greenhouses operated jointly by them, provided the amount of fuel so used shall not exceed one-half of the amount consumed by all such greenhouses when operated separately.

An addenda was subsequently issued (April 27) as follows:

The United States Fuel Administration to-day interpreted its regulations of April 24, restricting fuel for greenhouses by ruling that the exception made in favor of greenhouses in which vegetable plants were raised for "transplantation to produce summer vegetables" applied only to greenhouses exclusively devoted to that purpose.

A Good Remedy for Cabbage Worms.—I was the only gardener in our neighborhood who had good cabbages last year. I had tried salt, lime, slug-shot and even hot water to kill the worms, all of which helped but did not entirely get rid of the pests. Finally, I mixed about one part of paris green powder with, say, ten parts of slacked lime. While the dew was on in the morning I sifted sparingly over the cabbages this mixture. It proved to be sure death, and nothing further was necessary until the butterflies had time to raise another family of worms. For a sieve I used a small, hemispherical wire sieve with a handle on one side like a frying pan. The mixture was easily and quickly applied, and since cabbages grow from the inside, we felt no fear of the poison. And events have proved that we had no cause for fear, as the consumption of gallons of "liberty cabbage" (patriotic for "sauerkraut"), and cabbage cole-slawed, boiled, creamed, and vinegared, has left us all alive and feeling moreish.—*Mrs. Bertha W. Howe, Staten Island, N. Y*

The Poisonous Caterpillar.—A poisonous caterpillar is common in Pennsylvania in midsummer. The insect is white or creamy without markings of any other color, and heavily furred. It is a languid feeder in the daytime, lying generally on the underside of a leaf within a foot of the ground during the hot hours; for this reason its hairs easily sting the wrists and hands of any one weeding or working in a heavily grown bed of plants, before the insect's presence is suspected. The contact leaves an irritated rash like an alkali burn, with water-blisters sometimes following on the second day. The only treatment which does any good is to rub thoroughly with kerosene and scrape with a knife, as soon as the stinging sensation begins to be felt on the skin; but whether the scraping removes tiny hairs adhering, or merely opens the pores of the skin to the full benefit of the kerosene, I am not certain. A paste of yellow laundry soap rubbed on and scraped off like the kerosene treatment is used by some sufferers from the stings. Not infrequently this caterpillar rash is called ivy poisoning and treated with the lead paste used for that affliction, without relief. The stings are not so lasting as the inflammation from Ivy, and will leave only a brownish discoloration after the third day. They produce local irritation more rapidly than Ivy or than the stinging hairs of the browntail caterpillar and moth; and the trouble is the sooner over, also. The best way to kill these pests is to cut them in two as found, a long-bladed old pair of shears serving as my favorite weapon. As they hide low on a plant, I bend down the lower leaves of Dahlias, Hollyhocks, Feverfew, Larkspur, Roses, and Swiss chard, with a little stick or with my gloved left hand; and when the enemy is discovered, I snip him through and his halves fall to the ground with no chance to touch one's wrist or clothing and leave a bristle. When once half grown, the worms must be killed artificially, as birds take them only when young and short haired. As a general thing, they will not eat foliage which has arsenate of lead dried on it and so contrive to escape that scientific suicide so fatal to many foes.—*E. S. Johnson, Pittston, Pa.*

Anemone Vernalis.—The photograph taken on April 28th shows Anemone vernalis which I flowered for the first time this year. This little plant is a high Alpine with a long tap root which likes a good rock crevice. The

Anemone vernalis as it flowered in a garden in Montreal this year. It is a high Alpine with white flowers

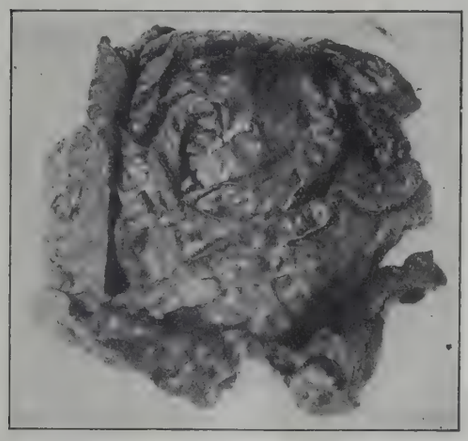
Shortia galacifolia, native of the Carolina Mountains. Attractive both in flower and leaf and well adapted to rock gardens.

flower which measures about 2½ inches across is a lovely pearly white with a great tuft of yellow stamens. Outside the petals are covered with silky hairs, flushed old rose, which shimmer in the sunshine. The stem is at first short and stout but generally lengthens till it reaches about 12 inches, and by this time the seed plumes have developed. Another early Anemone is A. pulsatilla, principally remarkable for the silky bracts which surround the rich violet flowers. In my garden Iris reticulata, Draba azoides and Shortia galacifolia are also in bloom at this season. The latter is a native of the Carolina mountains and is very attractive both in flower and foliage. It requires a cool, moist position and must not be allowed to become parched during the hot summer.—*F. Cleveland Morgan, Montreal, Canada.*

Irises for Cut Flowers.—It would be greatly appreciated, by myself at least, if we could have some notes on Irises for cut flowers, or Irises suitable for cutting. I, myself, am a hobbyist on cut flowers. I like those varieties of Rose, Peony, Iris, Gladiolus, etc., that have good substance and good keeping qualities as well as other good points. I. pallida dalmatica is such a good Iris for cutting that it seems that there ought to be other varieties of similar habit in the various colors. I tried to select dark purple Irises from catalogues, and some that I received had beautiful flowers but were either too low growing or wilted so easily as to make them useless for cut flowers. On the other hand, Pallida dalmatica, Queen of May, Mad. Chereau, Lohengrin, Perfection, and some others, have qualities that make them good for use as cut flowers.—*H. G. Reading, Franklin, Pa.* [What say the Neighbors? Which varieties *are* best?—*Ed.*]

Consult Official U. S. Bulletin.—Owing to the enormous increase of government war work, the governmental departments at Washington are being flooded with letters of inquiry on every conceivable subject concerning the war, and it has been found a physical impossibility for the clerks, though they number an army in themselves now, to give many of these letters proper attention and reply. There is published daily at Washington, under authority of and by direction of the President, a government newspaper—*The Official U. S. Bulletin.* This newspaper prints every day all the more important rulings, decisions, regulations, proclamations, orders, etc., etc., as they are promulgated by the several departments and the many special committees and agencies now in operation at the National Capital. This official journal is posted daily in every postoffice in the United States, more than 56,000 in number, and may also be found on file at all libraries, boards of trade, and chambers of commerce, the offices of mayors, governors, and other federal officials. By consulting these files most questions will be found readily answered; there will be little necessity for letter writing; the unnecessary congestion of the mails will be appreciably relieved; the railroads will be called upon to move fewer correspondence sacks, and the mass of business that is piling up in the government departments will be eased considerably. Hundreds of clerks, now answering correspondence, will be enabled to give their time to essentially important work, and a fundamentally patriotic service will have been performed by the public.

Hot Weather Lettuce.—Garden Neighbors will unquestionably be interested in one of my pets among lettuces. Its special adaptability for August planting will help to provide a constant supply of delicious salad until frost *and beyond*. I like to think of Crisp-as-Ice lettuce as the "crisp head" brother of Mignonette among the "butterheads," and anyone who is familiar with the distinctly unique and sweet flavor of Mignonette will also



Crisp-as-Ice lettuce which has been proved to stand hot weather well

want Crisp-as-Ice. Its compact growth and frost resistance make it doubly desirable. Set six inches apart in the row, the plants develop campact, hard heads 10° below frost without serious injury except to the outside leaves, and the only covering they had was some dry leaves.—*C. B. Cranston, Columbus, Ohio.*

Evonymus Radicans var. Vegetus.—This handsome, hardy evergreen shrub and climber comes into greater favor each year; this is not surprising when its marked hardiness, rapid growth, easy propagation, freedom from insect pests and other good features are considered. Probably some of the readers of The Garden Magazine may have noticed that when the ordinary radicans is planted against a moderately high wall that the foliage, as the plants ascend, becomes much larger, and no doubt some close observers may have noted the upper growth is very often the true vegetus with broadly oval leaves. Cuttings taken from these upper portions of the plants will prove to be the true vegetus which does not cling closely to walls as readily as radicans itself and is of somewhat slow growth but has a shrubby habit quite unlike the plant from which it emanated. The evergreen Evonymus are not of such slow growth as some people may imagine. I have had them cover a wall 15 feet in height in four years by using well rotted cow manure freely as a mulch each fall.—*W. N. C., Brookline, Mass.*

The Tricolor Ivy.—I wonder if the vine concerning which Mr. Chamberlain inquires in the March Garden Magazine is not the Tricolor Ivy, called by nurserymen Vitis heterophylla variegata, or Ampelopsis tricolor. Though not a native, this vine is well worth growing in American gardens. The term "tricolor" refers to the variegated foliage which, especially in the young stage, is mottled, veined, or splotched with pink and white. The young stems are also pinkish. Like other species of Vitis, the Tricolor Ivy has tiny flowers, but they are more abundant than those of the Pepper Vine (Ampelopsis arborea) and grow in clusters of greenish-white dots that seem to possess great attraction for bees. In the blooming season the vine is a perfect music box of bee songs on a summer day. The berries are of a peculiar lustrous steel-blue color that is as unusual as the variegation of the leaves. This vine seems to be well adapted to training over a pergola or an entrance porch, for, though not having a tendency to become entirely bare at the bottom, like some climbing Roses, it makes its densest and most active growth at the top. I have found it a fairly rapid grower. The vine shown in the photograph, planted four years ago at the corner between the window and the porch and at that time cut back to a stem about a foot high, has climbed and spread in both directions and now measures fully 35 feet from tip to tip. It makes a cool green shade for the window in summer and does not obstruct the sunshine in winter. This vine has a more open habit of growth than the familiar Clematis paniculata and needs little pruning. It does well in a sunny location but should be well watered in a dry summer. The seeds take root readily, and last spring I could have set out a hunderd or more thrifty volunteer plants that came up under this one vine.—*Bernard H. Lane, Washington, D. C.*

Viburnum Carlesii is Really Hardy.—Somehow I never could resist the attractive description which usually accompanies the introduction of some new novelty in the way of flower or shrub. The longer I live, however, the more fearful I become, as many are the times in early spring I have watched vainly for signs of life in some plant purchased the season before. I have come to the conclusion that this section of the Middle West has one of the most trying winter climates for plants in the temperate zone. Not that the temperature is the coldest, but it is very changeable. It may be fifty to sixty degrees above zero one week and twenty-five degrees below zero the next. Well, last year I tried Viburnum Carlesii and I fell in love with it. It has one of the prettiest and most delightfully fragrant flowers of any shrub I have ever seen. As the catalogue stated, "Of questionable hardiness as yet, north of Long Island," I was sure it would go when I saw it exposed to the blasts of fourteen to twenty-three degrees below zero. But to my joy it came through without a trace of injury. The buds which are formed in the autumn are glowing with red and the leaves are well advanced, all this in spite of the fact that three or four days ago the thermometer went to twenty-five above zero. Not ten feet away Forsythia Fortunei lost all its bloom buds, Kerria was killed to the ground and peaches were badly frozen back. From my experience I am satisfied that Viburnum Carlesii is absolutely hardy. I would like some one to tell me from whence it was introduced and by whom. One catalogue says it came from China, another says Korea, while still a third states that it was introduced from Japan.—*S. D. C., La Fayette, Ind.*

A Glorified New Jersey Tea.—It is a pity that the beautiful varieties of Ceanothus, which are found on the Pacific coast, cannot live in the Eastern climate. Yet, it is cause for congratulation that a thoroughly hardy hybrid, made by crossing one of the California species and the common New Jersey Tea, has been found perfectly hardy. This beautiful little hybrid might well be called a glorified New Jersey Tea, for while it has much the same habit of growth as the eastern plant, its flowers are very much handsomer and are grown in such profusion that the foliage is almost hidden. The blossoms are pale rose color, and are borne on rather short stems. When in full bloom the shrub looks like a floral pin cushion. After a test of several years made in the Arnold Arboretum at Jamaica Plain, Mass., this hybrid has proved perfectly hardy and well worth a place in American gardens everywhere. Curiously enough, there is no really accurate knowledge as to the original name or the exact origin of this plant. Probably, however, it came from France, and is the result of Lemoine's handiwork. It is well known that Lemoine obtained several beautiful hybrids from the California plants, but none of them with this exception is hardy in the East. The two common eastern species of the Ceanothus, C. americanus and C. ovatus, are valuable for naturalizing in wood borders and even for growing in the shrubbery border; but this nameless hybrid is good enough to use as a specimen.—*E. I. Farrington, Mass.*

The Tricolor Ivy is a rapid growing vine with lustrous steel-blue berries and prettily variegated leaves

Here is an unnamed unknown hybrid New Jersey Tea growing in the Arnold Arboretum. It makes a very decorative shrub

Blackheart in Potatoes.—Recent observations on potatoes in storage, conducted by the New York Experiment Station, Geneva, show that poor ventilation in storage is responsible for what is known as "Blackheart"—the centres of the potatoes becoming deep brown or black. The result of the inquiry would seem to show that it is not safe to pile potatoes more than six feet deep if they are to be held for some considerable time, even though the temperature is kept quite low—below 40 degrees. If the temperatures rise above 50 degrees and the potatoes are to be kept stored more than three or four weeks, they should not be more than three feet deep. Tubers stored in regulation pits in the earth are not so likely to suffer. It would seem that ventilation is better in these natural conditions. Blackheart may be due to lack of air or oxygen or to over-heating. In the former case the skin shows no sign of injury.—*L. B.*

Little Things for the Gardener.—A five-inch mason's pointing trowel is one of the handiest tools for a gardener that can be obtained. I carry one stuck in my hip pocket from Washington's Birthday to Thanksgiving Day, these holidays generally marking the limits of my gardening year. With it one can remove one or twenty-five seedlings from a bed. It makes just the right hole for setting the plant in new ground. It serves as an admirable weeder, as one can get under and around the plants with it easily and well. By keeping it sharp, and by a quick stroke with it, squashes, cabbages, lettuce, etc., can be cut and with its point a fugitive cabbage

worm can be neatly lifted out of the deepest recess at the base of a leaf, a retreat where he is safe from attack with nearly all other weapons. Two seasons ago I split the blade of an ordinary six-inch hoe. The whim took me that winter to redrill and rivet anew one half of the blade to the old shank and round off the corner of the break, so as to have a three-inch hoe. With it I can stand erect and cultivate a hotbed of lettuce after the plants nearly cover the ground, and similarly around all individual plants and in narrow rows it is a very efficient implement. It is excellent in the strawberry bed. And I can snip off a head of lettuce from the far side of a bed without tearing a leaf, either of the one cut or its neighbors remaining. We use it more than any other one hoe we have. I have obtained many valuable suggestions from "Among Our Garden Neighbors" and believe that these two items are worth passing on to serve others as they have served me.—*Ralph F. Perry, Watertown, Mass.*

Something Like an Apple.—Has anybody seen an apple that approaches the size and weight of one recorded in the English *Gardeners' Chronicle* for November 3, 1917? The variety is Peasgood's Nonesuch, a popular apple in England, weight two pounds, four ounces! The measurements are 18 inches over eye and stalk, and 17¼ inches around. Can any American fruit grower beat this?

Lettuces for Hot Weather.—It is a simple matter to head up lettuces in early summer and again through September and October, but in the two most torrid summer months most of the varieties will bolt quickly to seed before making any head. We have a number of varieties which can be classed as reliable hot weather sorts such as Salamander, Hansen, and Black-seeded Tennisball, but the best cabbage lettuce I have grown for some years is Standwell. This has never failed to give us nice firm heads even in the hottest weather. We plan to give midsummer lettuces a little shade, and water when necessary, this latter being applied at night. Many small growers fail to head up lettuces satisfactorily. Such leafy crops must have a rich soil containing preferably well decayed stable manure in some form. As a stimulant for lettuce about ready to head up I have used a light top-dressing of poultry manure, well worked in with the cultivator to good advantage. The Cos or Romaine lettuces are satisfactory hot-weather subjects, standing heat better than the cabbage section. If when these are headed up, they are lifted and planted on the floor of a cold cellar such as vegetables are stored in they will keep very much better than outdoors.—*W. N. C., Mass.*

Anyone can grow watercress at home in the window garden or other convenient place. Simply start

"Murphy at the bat"—*Minnesota State Food Administration*

Watercress in the Indoor Garden.—In these days when everybody wants to be growing something, it is worth while trying the cultivation of the salad plant watercress. This will flourish, even in a room, on the novel lines indicated. Get a pot and fill this with soil. Then on to the mould scatter a few seeds of the watercress; these can be obtained from any plant store. Or if some of the salad has been purchased, small bits of the plant may be stuck into the soil as cuttings. It will be found that these root freely. Then stand the pot in a bowl of water. It is important that this should be kept fresh and clean and it is a good plan to change it every day. The watercress will start to grow at a great rate and the young shoots are simply picked off as required. In a few days quantities of fresh shoots start away from the lower parts of the stem and one may go on picking the salad indefinitely. A few pots fixed up in this way will keep the household supplied with watercress.—*S. Leonard Bastin.*

Garden Catch Crops.—Early last August, before leaving for a month's holiday, I looked over my garden to see where I could slip in a catch crop or two that would give something fresh and green on our return home. All my garden land had been planted and interplanted and the only ground on the lot not in use was the chicken yard. The last of my winter layers was in a fattening pen preparatory to going into our lunch box. The soil of the hen yard was very rich in nitrogen from the droppings of the chickens. To balance it up I gave it a top-dressing of acid phosphate and wood ashes and plowed up the soil as deep as I could work it with my wheelhoe. I levelled it by cross raking and gave half of it a "salt and peppering" of turnip seed and seeded the balance also broadcast in lettuce and radish. Off we went for our holidays and I never thought of that chicken yard until our return. When we got back, the fence was so draped in morning glory vines that had run riot in my absence that it was some time before I could see inside. What a mass of foliage and wealth of green! The proverbial Jack's beanstalk could not have beaten those quick-growing crops in that highly enriched soil. We had plenty of crisp radish and tender succulent lettuce for use at once and the turnips were already beginning to swell their roots. By judicial thinning we had lettuce and radishes from that chicken yard until frost and plenty of turnips to last us all winter.—*H. N. Hutt, N. C.*

The Purpose of the Label.—"Tag Days" for Tulips and Gladiolus might be a suggestion for keeping separated many varieties of flowers from these bulbs. So often I am asked "How do you keep all these different varieties of Tulips and other things separated from each other, so as to plant in harmony of colors another year?" It would be absolutely impossible, I reply, if it were not for labels, especially where I try to get certain color effects by planting the bulbs in drifts with other spring-flowering things; also are the labels necessary when you are ready to take up your bulbs at the end of the blooming season. I find much pleasure during winter evenings in making my labels for this purpose. I take good manila paper either light or dark brown, a heavy wrapping paper which is tough and waterproof. I cut this in strips three inches long by one and a half inches wide, fold it lengthwise and sew twice through one corner with any kind of colored string that suits the flower, leaving just enough string to tie around each plant. With the name written inside the folded paper, tied at the base of the plant while in bloom it is not conspicuous and saves much confusion. I find this system of tying, too, very satisfactory for saving seeds. One surely feels repaid for the little time it takes to do it. I have used many kinds of labels, and like many others have been disappointed to find the name entirely obliterated just when I most wanted to know it. A few years ago I made several hundred of these labels for a very busy friend on a farm, who also grows flowers for profit; she found them so good that she has used them ever since.—*Mary Blumke, Saginaw, W. S., Michigan.*

Is There Any Way to Eliminate the Grasshopper?—They are devouring the buds of my Chrysanthemum patch and I haven't been able to find enough paris green to feaze them. Besides, I think they like it.—*Sherman R. Duffy, Chicago, Ill.*

Whoever would have thought of looking for an apple low down on the trunk of a tree? But such freak growths are not uncommon

THE MONTH'S REMINDER, AUGUST, 1918

The purpose of the Reminder is to call to your attention the things which should be thought about or done during the next few weeks. For full details as to how to do the different things suggested, see the current or back issues of THE GARDEN MAGAZINE. *(An index of contents is prepared for each completed volume, and is sent gratis on request. Check off with a pencil, in the square ☐ provided for that purpose the items that apply to your own case, and use the page as a reference list.*

AUGUST tries the soul of the gardener. He is likely to feel that if anybody is entitled to a vacation, he is. He may feel inclined to listen to the suggestion that the garden is now far enough along to look after itself—that crops are so nearly mature that it won't make any difference whether anything else is done to them or not. Do not be caught by any such propaganda as that!

The garden which is neglected toward the end of the season this year, will be a troublesome one at the beginning of the season next year! Every weed you allow to get a foothold now and produce seed will return a thousand strong to plague you next April and May.

Last Call for Succession Sowing

IF ONE acts promptly, there is still time to plant a few things such as ☐ early bush beans, ☐ beets, ☐ corn-salad, ☐ endive, ☐ kohl-rabi, ☐ lettuce, ☐ peas, ☐ "Chinese" cabbage or Petsai ☐ radish ☐ spinach, ☐ turnips. When a few hours will suffice for putting in all these things, why let the end of the season find the vegetable garden barren?

Keep cultivated all late planted crops. Unlike spring planted crops, these late planted crops have not "got all summer ahead of them." Their maturity is a race against the first frost—and only by the gardener's constant help can the crops win out. Cultivate frequently; ☐ give top dressings of nitrate of soda or some other quick acting fertilizer to get a sound early growth. A few days' delay may mean a lost crop.

Keep the garden cleaned up. Remove at once any vegetables that may have gone to seed or have become too old to use. Don't let weedy rows, here and there through your garden, sap its fertility and spread seeds for next year's crop of trouble. Keep the corners and fence rows clean. One neglected corner will produce enough seed to give trouble for the next two years. It is not necessary to *pull* all these weeds. The use of the sickle or scythe will keep them cut down and prevent seeding. The best way, however, is to spade them up, and put in Sunflowers or some other rank growing thing which will keep down the weeds as well as be ornamental.

☞ ☐ *As each row is cleaned out, if you have not got something else to put in its place, put in rye or vetch to get the winter cover crop started.*

Don't neglect the watering. Remember that the limiting factor of growth is WATER. If you want to get your crops on time (and big crops), remember that they must have plenty of water. If it isn't sent down from the sky, you must supply it from the hose or by irrigation pipe. If you are experiencing the usual August "drought," by all means get a portable irrigating outfit from your local dealer, and put it to work at once! In a garden of any size, it will actually pay for itself in the balance of this season.

☞ *Crops that never want for water yield two to three hundred per cent. more than those that depend upon the weather alone.*

Seeds for Next Year

REST assured that seeds are going to be scarce again. Are you saving any for yourself? This is not difficult to do with some things. Surplus bush beans, sweet corn, peas, summer squash and so forth can be saved readily. Of course, they will not come through "true to name" if they have had a chance to mix with other varieties blooming at the same time. Of the root crops, such as ☐ beets, ☐ carrot, ☐ turnips and so forth, select a few each of the finest roots to keep over carefully and grow some for seed next year. (See article in July GARDEN MAGAZINE.)

Among the Small Fruits

TO GET a full crop of the best strawberries you ever had for next June, ☐ set out potted plants, not later than the earliest possible moment you can do it! Potted plants set out now in thoroughly fertilized land, and carefully tended, will have good, big bushy crowns by freezing weather; and a full crop of fruit next season! If you set out runners, or wait until much later before setting pot plants, it will generally be too late for getting a crop of fruit before the year after next!

Have you yet tried an "Ever-Bearing" variety such as Superb, Progressive and so forth? If not, ☐ set out a few dozen plants to surprise yourself with next summer and fall. They are a real addition to the garden, giving berries of excellent size and flavor, and literally ripening until hard freezing weather.

☐ *Get the old canes out of the berry patches.* All canes that have fruited this year must be cut clear back to the ground. ☐ Also thin out the new growth, leaving only four or five canes to the plant. They will then grow much stronger and will make a bigger crop of larger fruit than if all are allowed to grow. The cane fruits are making their growth now for next year's crops. Now is the time to be sure that they do not lack for plant food and cultivation.

Keep bush fruits in good healthy growth. Bushes that are poor, starved and neglected now cannot bear full crops of good berries next season. Work in bone meal and tankage about the roots, and keep the foliage and the ground cultivated just as carefully as if you were going to have a crop this fall.

Flowers for the Prize Table

PLAN to take part in your local flower exhibition, but do not wait until the last minute to "gather up what you can, just to help on!" Make up your mind to the things that you want to exhibit and to have the best in your vicinity. You can make your flowers respond wonderfully by going at the work now and by keeping the two following principles in mind.

First; plenty of water. Absence of water is the universal cause of small blooms and premature flowering. Cultivation, of course, will help; but where that alone is not enough, water or irrigate and mulching with grass clippings, fallen leaves, old vegetable tops, or anything that will cover the soil and help keep in the moisture.

Second; plenty of plant food. Most flowers at this time of the year require a little plant food, in addition to what may have been given at planting, to continue rapid growth and make full development. For immediate results, where growth seems lagging top dress with nitrate of soda or nitrapo—the latter also contains a high percentage of available potash. For a general strengthening, to last through the season, work bone meal and tankage about the roots.

Third; not too many blossoms. For prize-winning blooms the strength of the plants must be conserved and concentrated on a few flowers. Prune back heavily, and dis-bud. If you have never done this, you will be astonished at the difference in the size and substance of the flowers obtained.

Fourth; keep well sprayed. Don't let insects get a start, either to sap the strength of plants, or injure buds and blooms. Remember; one squirt of prevention (combination spray including, arsenate of lead, bordeaux mixture, and nicotine extract), is worth a quart of cure!

Fifth; Keep well supported! Plant stakes, wire supports, small branches stuck into the ground—whatever may be required according to the nature of the plant—will not only keep the blooms from being beaten down and spattered with mud, but help save the strength and vitality of the plant, to be spent in producing perfect flowers instead of in repeated efforts to stand against the wind or straighten up after storms.

These hints apply especially to Dahlias, Gladiolus, Monthly Roses, Hardy Chrysanthemums and Annual Sunflowers, Tritomas, and the like.

Keep the Seedlings Strong

PLANTS started during the last few weeks, either for fall or winter flowers, or perennials or biennials for next year, will soon begin to crowd if left to themselves. ☐ *Thin them out early!* Better still, transplant just as soon as they are big enough to handle. Delay in transplanting is often the cause of failure with the beginner who is attempting home-grown perennials for the first time.

Envy Your Neighbor's Evergreen Hedge?

THIS is the time to put in Evergreens if you want to have something better than the ordinary. Probably no other single feature will add more to the comfort, attractiveness, and market value of a place than a nicely started, well kept evergreen hedge, or a suitable planting of evergreen trees. If you don't know just what to select, refer to the information given in previous issues. ☐ Plant evergreens this year, and live happily ever after!

Plenty of other things you can plant or order now to plant later: shade trees, decorative shrubs, etc., that there never seems to be time for in the spring when one is "making garden." And here's an inside tip—this is the year to buy nursery stock. Owing to abnormal conditions, decorative trees and shrubs have been moving slowly; and the present buyer therefore gets the benefit of a larger and better selection than usual.

Start a Little Nursery of Your Own!

THE way to have all the evergreens, etc., that you want, at least expense, is to buy a dozen to a hundred (according to probable requirements) of seedling trees of the things you may want. They will take little space, and still littler time, for the next two or three years.

And How About Your Lawn?

If the lawn isn't as smooth and green and "springy" to the step as you would like to have it, why not utilize some of your "daylight saving" account with the time bank to put it into shape, or to make a new one?

Now is a good time to get that attended to *right.* Especially if you have water available. There is nothing that makes or unmakes the appearance of a place so surely as the lawn. Have yours the envy and not the pity of your neighbors. Good seed, *sown*

thick, plus abundance of water, is the prescription for a good lawn in six weeks. The soil of course must be well drained, not sour, and well enriched with bone meal or other suitable fertilizers.

Greenhouse and Frames

BEFORE you do another thing— ☐ Have you got a good *sod pile* put up? That is the basis of all next season's success. —good thick turfs, out of rich soil, stacked grassy sides together, or with alternate layers of manure will be ready to chop down when you want it most.

Both inside and in the frames it is time to have everything in readiness for the first plantings of under-glass vegetables, and flowers, such as lettuce and carnations. Success depends largely upon having these things well started before artificial heat has to be used. Thoroughly whitewash all woodwork, benches, etc., before making ready for the incoming crops.

Irrigation under glass. ☐ If you have 30 lbs. or so pressure with your present watering system, by all means put in a line of ¾ inch pipe, with "indoor" nozzles, to cut down the constant and slow work of watering indoors—it spreads the water in a fine mist, that will not injure the most delicate flowers.

Light Activities All Along the Line

THOUGH there is no major operation to be carried out at this time, yet there is plenty of activity on all fronts in gathering the fruits of the earlier efforts and at the same time giving consideration to the future welfare of the garden.

The Month of Realization

CROPS are maturing, yet the ripening is always subject to weather conditions and while these are broadly general at specified periods of the year, there is some variation. Onions will be ripening. Termination of growth is indicated when the tops turn yellow and the outer skin becomes tough and transparent. The bulbs should then be pulled up and laid singly in rows to dry. If they are turned several times it will improve them. After a few days' curing the roots and tops can be twisted off and the bulbs placed in an open crate, so that the air may circulate around them freely. Then store for future use in a cool dry place.

Early celery will be ready for use. Banking with earth is dangerous during warm weather as the lack of air is liable to cause decay. By preference use boards or paper collars which are made for this purpose. Blanch in usable quantities. It takes from ten to fourteen days to blanch celery, so it is not difficult to figure out how much to cover at any one time.

Tomatoes may be hastened to ripen by reducing the amount of foliage. Cutting out the leaves admits air to the interior of the plant and so also prevents the fruit from decaying. The leaves may be removed to the last joint, but not entirely.

Melons are ripening. Muskmelons leave the vine voluntarily when ripe and should never be cut. Place the fruit in an empty frame for a few hours to finish the process and ripen the flesh to the outer skin. Ripe watermelons give a very perceptible crunching sound on pressure if ready to gather.

Sowing Crops for Fall

MANY quick maturing crops may now be sown for fall use. Indeed those of "cool habits" cannot be sown in summer with any degree of satisfaction. This is true of the *heading types* of lettuce, radishes, spinach, peas, and turnips; beets, carrots, and rutabagas can be added as winter crops.

The common complaint that fall crops are a failure can usually be attributed to improper cultivation. Let us reason out the matter. Usually dry, hot weather prevails at this time of year; evaporation of moisture is therefore more rapid than at any other season; the ground (in most cases) has yielded previous crops and is somewhat exhausted; rarely is any effort made to refertilize. Lack of attention is the cause of failure with fall crops. If we saturate the drills thoroughly with water before sowing the seed, if we replenish the fertility of the soil (with some well rotted manure or other means), and in addition give ordinary good cultivation to conserve the soil moisture, the results are certain. During the month make two sowings of peas, spinach, radishes, lettuce, and endive; one sowing each of beans, carrots, beets, turnips, and rutabagas. Remember when making late sowings that the ground must be dug over and prepared exactly as for spring plants.

Value of Summer Cultivation

EVAPORATION is most rapid during the hot dry weather of summer and plants do not differ from other living things in requiring more moisture to offset the process of evaporation. If the soil is lacking, the plants will soon be easy victims of the hot sun. No amount of surface moisture will prevent this; plants gather the required moisture from the soil. It is drawn up into the leaves and used to build up growth. The excess is passed off into the air. This constant circulation of moisture is essental. The soil moisture need not be in direct contact with the roots, as, by capillary attraction, the roots can draw moisture from a considerable distance. Therefore cultivation at this time is the key to success in the garden. It should be practised regularly and deeply. No cultivating tool that I have yet seen, cultivates the ground too deeply.

Bugs and Diseases—How to Fight Them

AMONG the worst enemies of plants are the larvæ (caterpillars) of moths and butterflies which operate to a considerable extent at this season of the year. They are terrific feeders and, if not checked, will very shortly ruin any plants attacked. Fortunately the fact that they are tremendous eaters makes them easy prey to any poison that may be applied to the plants, and *there is no excuse for the ravages of these pests* since they are so easily detected and so easily destroyed. For the spraying of most plants, arsenate of lead is preferred because it adheres to the foliage, and being white shows clearly the finished work, leaving no excuse for misses. On plants that are to be used within three weeks of the spraying period, it is advisable to use some of the non-poisonous insecticides. These can be secured at any supply house.

Soft foliaged plants such as muskmelons, celery, tomatoes and potatoes should be constantly inspected for blights and mildews and sprayed with bordeaux mixture at biweekly intervals as a preventive.

If the larva of the asparagus beetle is operating dust the plants when moist with dew with one of the dry poison compounds, such as arsenate of lead or hellebore.

Examine each plant at the terminal growth and the inside of the leaves for the presence of aphids. These are unquestionably one of the hardest of all plant enemies to destroy because their presence is in many cases not detected until they have seriously injured the vitality of the plant; spray them with nicotine solution or a fish-oil soap. Spraying on three consecutive evenings should assure success.

Squash, cucumbers, and pumpkin are often affected with the *squash bug* or *cucumber beetle*. If the insects are present spray the underside of the leaf with a strong nicotine solution, using an upward directed nozzle as the spray kills by contact only.

Look over corn for the presence of ear worm and, while a little late, some dry arsenate of lead dusted on the silk of late maturing crops will be helpful. Where the worm has hatched, the only course is to slightly strip the ear and remove the worm by hand.

Pulling Up Finished Crops

HERE are some practical follow up crops for succession: Replace crops of cabbage and corn with lettuce or spinach or vegetables of a similar nature. Try to regulate the ground so that the root crops will succeed such crops as peas and other leguminous plants on account of the quantity of nitrogen which these plants have stored in the soil. The onion bed makes an ideal place for the finishing of lettuce of the heading types, which require a very rich soil. When early potatoes are dug the space should be devoted to rutabagas or other winter root crops. Crops may even be sown in between the rows before the potatoes are gathered but of course if this is done, great care must be exercised when digging.

And if you do not desire to sow late crops in the vacant places in the garden, you should certainly sow cover crops such as clover or rye with the idea of turning under next spring. This will add considerable fertility to the ground at the minimum of cost, and more over such soils will hold moisture better next season.

Gathering the Fruit Crops

ALL fruit such as raspberries, blackberries, gooseberries, and currants should be picked clean; not only from an economic standpoint but because the ripening process is a strain on the plant's resources and the sooner this is relieved, the more quickly and vigorously will the plant be able to begin its growth for the *following season's crop*. Remove the old fruiting canes as soon as the crop is gathered, thus giving every chance for development to the young shoots that are to bear the future crop.

Peaches and pears, and in some cases young apple trees, will often set more fruit than the wood is able to support, and this is liable to lead to considerable injury to the tree, in the event of a heavy storm. Therefore, provide supports where the branches are bending from the load they are carrying—a crotched stick placed under the branch will answer the purpose, a piece of old carpet being first wrapped around the branch to prevent barking.

The small bugs will get the crops if you don't look out. Hand pick the cabbage worm and dust on insecticide for the asparagus beetle

The real secret in getting quality in the muskmelon lies in not picking it until it is really ripe, when it will leave the stem naturally. Never cut a melon. The flavor can be improved by putting under glass for a few hours

The Garden Movies, No. 8

While we are gathering the harvest of the early spring plantings, we must also keep constantly at work sowing crops for fall, fighting bugs, and by good tillage and cultivation offset the strain of summer heat

Photographs by W. C. McCOLLOM

Weeds are robbers of fertility and keeping them mowed down is even more important now than in early spring

Summer transplanting will be made easy by using a large umbrella to shade both planter and plant

Break the tops of the onions before ripening begins. This will result in a larger bulb and consequently a bigger crop

Cut to the ground the old fruiting canes of raspberries and blackberries—they are of no further use

Thoroughly water the drill before sowing seed in hot weather. This puts the moisture where the young plants need it and insures a proper start or germination

When both the tops and roots of the onions are dry, the tops can be easily twisted off and the bulbs placed in crates for storage

As soon as the early potatoes are ready dig them up, and resow the ground to a fall crop such as spinach or lettuce to keep the soil producing

Coalless Greenhouses That Produce

W. C. McCOLLOM

Carrying On with Kerosene or Wood—Food Crops That Need Very Little Heat

ALTHOUGH the Fuel Administration has ruled on a sharp cut in coal for greenhouse purposes during the coming winter, that need not mean that owners are to close them in a panic of dismay. Complete closing will result in serious loss, and a winter of abundant snows would be destructive because the accumulation on the roof will cause roof sags—not only breaking glass, but seriously straining the structure. The owner who closes his greenhouse during the winter has surrendered to a condition that is by no means hopeless.

We must be prepared for some sacrifice in these times. Of course the new conditions make our tasks harder. It is much easier to bank the fire with coal at five o'clock in the evening, and forget your greenhouse until the following morning when everything is found warm and comfortable, than it will be to give attention to other means of heating, such as wood or kerosene. As a matter of fact, little, if any, heat is required during the day. Successful greenhouse gardeners bank their fires the first thing in the morning, and in many cases turn off the valves because they realize that too much heat will cause considerable trouble.

Oil heaters, burning kerosene, have been successfully used to keep greenhouses in operation. Many crops will thrive with only moderate heat

Here are Real Facts

THEORY is good; but facts are more impressive! Last winter, when for weeks the thermometer hung around the zero point, there was under my observation a greenhouse range of approximately 4,500 feet of glass that was successfully operated entirely on wood fuel. The owner was eating fresh green beans when his friends were trying to become accustomed to the kind that come in tins; when spinach was scarce, he and his family were enjoying it freely; and other crops of food value were his in abundance.

I know of another greenhouse that was operated with the ordinary No. 3 Perfection oil heaters (consuming one gallon of kerosene each per night). Two in a greenhouse 11 x 30 did very nicely until the outside temperature fell below 10 degrees Fahrenheit during the month of December and, as the vegetable crops were then about finished, it was decided to close the greenhouse until the following spring. The oil heaters were set in operation again in March and in a very short time vegetable crops were being gathered.

There are many thousand greenhouses in the country and the amount of food stuffs that they could produce would be a staggering total: Three crops of lettuce during the winter at 1 sq. ft. per head. Three crops of cauliflower 1¼ ft. square per head. Beans, tomatoes, beets, carrots, spinach and other vegetables are of the easiest culture. The space underneath the bench may be devoted to chicory, rhubarb, asparagus, seakale, and mushrooms. Even bush limas, peas, onions, parsley, peppers, eggplant, radishes, Swiss chard and turnips are all possible if the start be made at the proper time. There is no vegetable that cannot be forced.

Four Open Paths

THERE are four paths open to the greenhouse owner this winter. 1, (to be at once put aside), is the closing of the house. 2, operating entirely on wood fuel (which can be done quite conveniently in many suburban localities). 3, operating with kerosene stoves, which is quite possible, being merely a question of multiples. 4, and by far the most practical, is to get possession of the allowed quantity of coal using it only in emergencies, relying on oil or wood for general heating.

Ordinarily there are but eight or ten weeks of very severe freezing weather in the latitude of New York and that is by no means continuous and where it has been customary to start the fire in September or October wood or oil heaters may be relied upon entirely until January 1st. During severe weather coal will be used, but will be cut off immediately the weather modifies. By following a plan of this kind it may be possible to operate a greenhouse at 100 per cent. efficiency on the 50 per cent. coal allowance of the Fuel Administrator.

Tomatoes give satisfactory crops under glass. Here's the kind of plant you should start with at this time

What Results May Be Expected

LET us take for example, a greenhouse 18 x 50. A house of this size has approximately seven hundred square feet of benches. Allowing three crops of lettuce, we should obtain twenty-one hundred heads in return for our winter's effort. Of cauliflower, we should obtain in the neighborhood of sixteen hundred heads; or from twelve hundred to fifteen hundred pounds of tomatoes.

Time to Start Now

THE proper time to start preparations for the winter garden under glass is August. Seeds for the forcing crops should be purchased at this time, and crops that are slow in maturing, such as bush limas, tomatoes, eggplant, peppers, cucumbers, parsley, spinach (both types) and Swiss chard should be sown. Use quick maturing types and where through long years of selection, superior forcing varieties have been developed (as with tomatoes) these special strains should be used. While local conditions sometimes influence the value of certain varieties; yet for general purposes the following varieties will be found satisfactory for greenhouse culture: In Beans: Black Valentine, extremely productive, with Sutton's Masterpiece a second choice. The wax podded beans do not force very well as they are susceptible to rust. In bush limas: Fordhook will be found satisfactory. Early Model is the best beet; good color, perfectly round and quick in maturing. Either type of Swiss chard may be used. Of cabbage: use only the *very early* varieties such as Copenhagen. Of carrots: Early French or Chantenay. In cucumbers the large English forcing types are superior in results, but White Spine is very productive. The Early Long Purple eggplant will mature much more quickly than the larger fruited types. Big Boston, May King, Ideal, and Golden Queen are the best forcing types of lettuce. Any type of onion may be used as they are used when half developed. Ruby King and Bull Nose are the best adapted peppers. With peas the varieties used most commonly are Little Marvel, Laxtonian, or American Wonder, of wrinkled varieties, and New York market as the best round seeded type. Long Season is the best spinach. New Zealand spinach should by all means be sown. It can be cut throughout the entire winter from one sowing. Tomato varieties that are particularly adapted for the greenhouse are Stirling, The Don.

The Factors in the Case

AS TO the conditions in the house, the atmosphere is absolutely under the control of the operator. In order to make the greenhouse productive you must have a good rich, wholesome soil and it should be made ready at this time. Get a good turfy top soil and incorporate with it about one-third of its bulk of well rotted manure, using about one twelfth part of bone meal and lime to neutralize the acids in the soil. This should be turned several times, chopping the sod to thoroughly incorporate the manure with the soil. A compost heap should be

placed conveniently near the greenhouse and should be stacked so that the rains do not leach the good qualities from the soil.

For forcing, vegetables should be considered in two broad classes; 1, those that are sown in pans or boxes and transplanted to the benches after they have made considerable growth, including cauliflower, cucumbers, eggplant, lettuce, peppers, and tomatoes; 2, those that are sown directly into the benches where they are to mature: bush limas, beets, carrots, Swiss chard, parsley, peas, spinach and New Zealand spinach.

It is quite necessary that drainage be provided for seeds started in boxes. Do this by placing about one inch of cinders or broken flower pots in the bottom, over that a little moss and then about one inch of good soil that has been run through a coarse screen. This should be firmed and made perfectly smooth. Scatter seeds evenly on the surface and cover about twice their diameter with soil. Then water carefully. Crops that require successional sowing (cauliflower, lettuce, and cucumbers) should be sown in small quantities, the successional sowings timed so as to give a continuous supply. Eggplants, peppers, and tomatoes are continuous bearers and but one sowing is required for the entire season's supply. When the seeds have germinated they should be watered carefully to prevent damping off, and when they have made their first character leaf should be transplanted into thumb pots, and later transferred into larger pots before they are permanently benched.

New Irises for the American Garden

B. Y. MORRISON

Reviewing Some of the Home Productions that are Likely to Displace Old Timers from Abroad

IN THE August, 1917, issue of THE GARDEN MAGAZINE, Mr. Thomas gave notes on some of the "new" Irises. As one who has been growing Irises for some years, I should like to offer some differences of opinion and to make various additions.

In the last few years all of the Goos & Koenemann seedlings have had a place in my garden and I believe that Mr. Thomas is correct for the most part in his final judgments of them. I do object, however, to the inclusion of *Nibelungen* in the group "of an attractive freshness and brilliancy." No Iris of its coloring, which is distinctly clouded, could be that; yet the fact remains that it is a very charming flower. Two desirables of the group that appeared at the time of the introduction of the others, he fails to mention. These are *Mars*, an improved Gajus, not to be confounded with the Intermediate of the same name, and *Fro*. This latter is a favorite of mine because of its fine form and brilliant coloring. The standards are a gold color and the falls are a particularly telling and vivid shade of reddish chestnut. The flower is not large and the coloring is not absolutely new but the entire plant is of a much better standard than any of its near fellows.

And this inference brings me to the chief point that I wish to make in regard to the "new" Irises: that I believe that the Irises that we know to-day will be, to a very large extent, replaced by a new set of varieties within a very short time. The introduction of the two species *Iris trojana* and *Iris cypriana* has made possible for the hybridizer a new line of development. The results already have been extraordinarily good but they will, in time, be better for the standards will rise as time goes on.

Queen Caterina, an American raised seedling of lavender violet.

Parentage in a group as involved in crosses as is the group known as the Bearded Irises is a matter difficult to record and it may happen that in some cases the varieties named are not correctly placed, for when one must depend upon the outward appearance of the varieties it may easily happen that mistakes are made. In what follows therefore the groupings are made with a certain reservation.

The introductions from Mr. Farr were very well covered for the most part in the article referred to, but personally I regret that *Rose Unique* was dismissed so briefly and that the older *Juniata* should be so little praised. Both are excellent. *Quaker Lady* is very pleasant in coloring, form, and habit but will be displaced by the far more charming *Eldorado* that comes from England. *Wyomissing* with me has proved very indifferent in all points save color and that will not atone for its very poorly shaped flowers and ragged growth.

Of the Irises from abroad all, save *Miss Willmott*, which with me has been fine, deserve all that was said of them. But there are many omissions. Let me commend *Nine Wells*, a splendid four to five foot Iris with good flowers, standards lavender and falls darker, with some white veination on the haft of the falls; *Shelford Chieftain*, a tall cypriana of temporary merit, similar in coloring but lighter and without veins; *Tamerlane*, a fine bicolor of very perfect form and delicate coloring; *Loute*, similar but with a tinge of red purple through the lavender; *Dawn*, an exquisite pale yellow better than flavescens though not identical: *La Neige*, a very perfect late snow white; *Stamboul* and *Shalimar* two splendid trojanas with widely branching tall stalks and fine bicolor lavender flowers. All these, with *Alcazar*, *Archeveque*, *Monsignor*, *Prosper Laugier*, *Oriflamme*, *Edouard Michel*, *Mrs. Alan Gray*, *Kashmir White*, *Miss Willmott*, *Parisiana*, and one or two others will make a group of Irises that is a revelation.

But there are other fine ones to be had and these are of American origin. They come from the garden of Miss Sturtevant who contributed a note on the raising of seedling Irises to THE GARDEN MAGAZINE for June of last year. Her seedlings follow two distinct lines: the familiar type as we know it in the various groups pallida, variegata, etc., and the new group that shows the influence of the blood of I. cypriana and I. trojana.

Of the former, the most striking is perhaps, *Anne Leslie*. Here the standards are white with the faintest flush of pink on opening and the falls are a rich "dahlia carmine" to use a term from Ridgeway. This far surpasses the much heralded *Dalila* from Europe which is much more dull throughout and darker in color. *Elinor* is a charming dwarf Iris of a good clear mallow pink, a distinct advance over Wyomissing. *Afterglow* is an extraordinary color, a dull pinkish gray so suffused with a glowing yellow, especially in the centre on the style arms, that it appears almost luminous. A group of "variegatas," *Medalion*, *Rakan*, *Whiffenpoof*, *Sarabande*, and others, provides a finer set than we have now, surpassing *Princess Victoria Louise* and others.

Another group suggestive of *Oriflamme* and *Alcazar* in the wide standing standards, composed of *Merlin*, *Myth*, *Magnate*, *Rangoon*, give a size of bloom that has not been approached as yet. Of special value also are *Empire*, a splendid late pure yellow suggestive of Monsignor in form and habit, and *Shekinah* a tall late pure yellow of the best pallida form. This last is one of the most prized achievements of the Glen Road Gardens.

But the other group is the really important one as it marks a distinct departure. Of the seedlings in this group there is the exquisite *Mother-of-Pearl* a five foot cypriana of a delicate blue color with the faintest iridescence of pink. A marked orange beard gives a distinct accent. *Nirvana* is an equally tall plant with flowers of a pinkish buff color underlaid with lavender that deepens through the throat, and below the beard. *Queen Caterina* is a huge self-colored pale lavender violet. *Mary* is a deep velvety violet almost the hue of the early Spectabile. It comes quite late and has the size and form of the cypriana varieties. *Mad. Cheri* is a large flower with standards of a delicate lavender buff with a yellow undertone and falls of an "ageratum violet" (to quote Ridgeway again) flushed with pink. *Sherbert* is similar save that the scheme is strongly to pink, with a tinge of brown on the falls and yellow veining on the haft of the falls. And so one might continue, with *Elaine* a pale lavender pink; *Baronet*, with standards of "chickory blue" and falls a deeper violet with tawny olive veins near the beard and on the haft; *Avalon*, a silver medal variety (from the Massachusetts Horticultural Society, which has certificated many of the varieties) a monstrous flower of perfect form and substance, and of a pinkish lavender color.

But there is soon an end of terms to relate the shades that are to be found, even with occasional assistance from Ridgeway; and a treat is in store for the garden lover who comes to know these new irises that are our own, the contribution of an American garden.

Quest, new American seedling Iris of cypriana type

Peonies That Satisfy

PAUL V. D. HOYSRAD

A Helping Hand in the Selection of Varieties for Immediate Planting, According to Needs

ONE question almost certain to suggest itself at this time when selecting and ordering Peonies for planting in the next few weeks is "Shall I plant a collection of the rare, high-priced varieties, or shall I set out a large number of the older, standard varieties?"

The keener one's fondness for this popular hardy flower, the more eager is one to acquire the latest and very finest; but while a bed of rare varieties is likely to become a widely famed object of admiration in its height of bloom, it does not add that striking bit of color to the garden which is lent by a long row or solid plot of the older varieties.

The lover of hardy flowers will probably search in vain for a flower, the names of whose new varieties keep so well abreast with world events as the names of the new varieties of the Peony. Already Monsieur A. Dessert, the famous French culturist of Chenonceaux, has introduced one with the happy title of *Victoire de la Marne*, globular flower of a velvety amaranth red.

"Rich and Rare Beyond Compare"

AS A matter of fact, it is almost impossible to buy the latest, most recently introduced varieties without paying several dollars for a single root. But what these rarities take out in money they generally make up in beauty and vigorous growth. Take a variety like *Therese*, for example. Those who have seen this at the height of its loveliness, its immense cup-shaped flowers standing proudly erect, and its wonderful hues, glossy flesh-color mingled with light pink, have probably fancied they were looking on the finest Peony in existence. Marvelous as Therese is, however, it is only one out of a dozen or more equally beautiful varieties.

In coloring *Soulange* is perhaps the rarest and most remarkable of all the recent introductions; for its tints are so unusual, indeed, that they are almost indescribable. Some growers describe it as having salmon shadings, but the brown tints border so closely on the red in the centre that I am almost tempted to call it a caramel shade. Brown or red, however, Soulange is truly magnificent.

The most sought after and possibly the most distinct of all the introductions of Monsieur Victor Lemoine, the great French hybridizer, is *Le Cygne*, which surely bears out its English meaning of "the swan," for its wax-like incurved petals first of all give the impression of rare delicacy. With its cream-white flowers growing in clusters and fading to paper-white as time passes this variety has won so many enthusiasts since its introduction in 1907 that to-day it is almost impossible to obtain a small root of it for anything less than fifteen dollars. A visitor to M. Lemoine's establishment in 1911 declares that the original plant of Le Cygne, blooming at the entrance of the grounds, was a sight never to be forgotten, giving the impression of a huge ball of snow. And it is still more interesting to note that in the voting contest over the newer varieties held by the American Peony Society, Le Cygne received more votes than others, obtaining a score of 9.9 out of a possible 10.

Some Dusky Chiefs

WHERE love of Peonies runs high, however, one usually finds this queen surrounded by a throng of other royal beauties. One of these may be *Monsieur Martin Cahuzac*, tall, dark, and magnificent in its deep maroon hues, glorying perhaps in its title of the darkest Peony in the entire flower kingdom. Another may be *Primivere*, the very intimation of "spring time," its English equivalent, with its deep cream-colored hues. And still another may be *Madame Jules Dessert*, the lovely tints of which are almost beyond description. To the person who has beheld this in full glory, its immense white flowers shaded with pale pink and displaying here and there a cluster of golden stamens, the thought may perhaps have suggested itself that this magnificent lady was blushing over its own beauty!

Peonies take their place in the garden either alone or in combination with other perennials and flowering shrubs

Compared with sombre Martin Cahuzac, *Karl Rosenfield* is the most gorgeous of dandies; for its flaming crimson would turn any rival pale with envy. *Mignon*, on the other hand, exhibits a beautiful variation of tints with the advance of the blooming season. At first it is a blush-white, but gradually this shade passes into a rich cream color, subtle tints and fragrance together combining to make it a truly superlative variety even for this day of marvelous introductions.

Lightsome and Fair to Look Upon

THERE is such a wide range of varieties, the colors of which border on a delicate flesh-pink and yet possess small individual marks of distinction that with nothing to fall back on but an English dictionary one is at a loss to describe each variety in detail and always give it the honor due its beauty. For a combination of fragrance and rare coloring in a single flower *Mont Blanc* is as outstanding as the mountain of geography is among Alpine peaks; the slight tints of rose on its milk-white blossoms give it an exquisite blush.

Miss Salway is another variety that one reasonably expects to find among the royal paragons of the family, introduced by the Kelways; but the flower is perhaps less impressive for its coloring than for its striking form—a high crown surrounding a centre of shell pink.

NO LOVER of Peonies would dare forget *Tourangelle*. This high-priced beauty has already excited "Ah's!" and "Oh's!" quite beyond number; but our mother-tongue offers so few terms for descriptive purposes that one can only say it is a delicate flesh-color tinged with rose and salmon, knowing all the time that so matter-of-fact a description will not carry one tenth of the flower's loveliness to the mind of the reader. There is food for thought, however, in the fact that one large grower has declared "one cannot speak in temperate tones of this variety."

The Tried and True

TURNING from the rare, high-priced, kinds to the older, longer-established varieties, one is confronted by a bewildering list, the task of selecting the standard, best all-around varieties appears to be hopelessly confusing. One must necessarily go to a reliable grower or else carefully study the catalogue of a dependable specialist before one can earn which varieties have stood the test of time and are now considered the standards and most beautiful of their class.

For more than half a century *Festiva Maxima* has been a standby of growers all over the world, with its vigorous, erect growth and its enormous white flowers, flecked with red like drops of blood. *Felix Crousse* is another favorite, a brilliant crimson, without which no collection is complete. Still another famous variety is *Monsieur Jules Elie*, that proud gallant, adding glory to the humblest garden with its enormous globular flowers of silvery pink.

BUT for the flower-lover who enjoys no acquaintance with varieties and yet has a lurking desire to set out Peonies and watch his plants increase in loveliness from year to year, a generous list of standard varieties may not be out of the way as a concluding word. I am not so foolish as to claim that the following is a list of the forty or fifty absolutely "best" Peonies for the reason that no two growers could ever agree on the same number. But I venture to say that this list probably includes a majority of the standard low-priced varieties which have received the highest recommendations from reliable growers and authorities:

Festiva Maxima, La Tulipe, Achille, Armandine Mechin, Umbellata Rosea, Marie Lemoine, Madame Calot, Triomphe de l'Exposition de Lille, Virgo Maria, Madame Bucquet, Madame de Galhau, Eugenie Verdier, Edulis Superba, Felix Crousse, Alice de Julvecourt, Modele de Perfection, Baroness Schroeder, Marguerite Gerard, Monsieur Jules Elie, Madame Emile Lemoine, Avalanche, Livingstone, Marie Jacquin, Madame Crousse, Couronne d'Or, Lamartine, Gloire de Charles Gombault, Boule de Neige, Duchesse de Nemours, Madame de Verneville, Octavie Demay, General Bertrand, Jeanne d'Arc, La Roziere, Louis Van Houtte, Delachei, Delicatissima, Modeste Guerin, Madame Forel, Marechal Vaillant, Duc de Wellington.

THE PATRIOTIC GARDEN

FOOD F·O·B THE KITCHEN DOOR

He also Fights who helps a Fighter Fight

H·HOOVER

EAT·FRUIT·AND·SAVE·SUGAR

EAT·NUTS·AND·SAVE·FAT

Over Here and Over There

LUTHER BURBANK Member National War Garden Commission, Washington, D.C.

TO NO other nation in the world's history probably has such a stupendous task been given as that which has been assigned to the United States in the present titanic conflict. In this modern battle of the giants the young Hercules of the western world is called upon to perform what seem like impossible labors.

In addition to the military force which the United States is exerting both by land and by sea, there are other services it must render to the common cause. The greatest of these is the furnishing of food in vast quantities to the Allies for their civilian populations and for their armies. At the same time this country is obliged to send more and more wheat, beef, and other staples abroad for its own rapidly growing army in France.

Food has become therefore the great outstanding problem. Wherewithal shall we be fed? is the question which has been on the tongues of millions of men ever since the war started. Old sources of food supply were being used to the utmost; but it was evident from the outstart that this would not begin to take care of the food needs of the world. It became necessary, therefore, to look for new means of increasing the amount of food on hand.

There were two ways in which this could be brought about. One was by increased production. The other by conservation.

AS TO the former it was realized that the farmer, handicapped by shortage of labor due to the draft and his help going off to work in munition plants, could not accomplish all that was demanded. On this account a new source of food supply was looked for. There was an undeveloped field, it was observed, in the uncultivated home yards, back yards, vacant lots, and open spaces of our cities, towns and villages. This "slacker land" must be put to work, it was decided. And so the National War Garden Commission started on its nation-wide campaign to arouse all our "city farmers" to their patriotic duty of raising food.

WHILE there always had been a few gardens here and there, with quite a sprinkling of them in some places, never before had any effort been made to get this work started on a national basis. The value of the enterprise lay in the fact that these small tracts of land numbered up into the millions. They may range in size from a few square feet up to an acre or more. None individually large. It is only by taking them in the aggregate that the immensity of their power as a food producer is realized. It is the same as with the other small things which have gone to make the big forces of this war. This is the day of stupendous undertakings, of plans and projects which would have made us gasp with wonder a few years ago. We speak now of billions of dollars and of immense appropriations with an unconcern which would not have been dreamed possible less than a decade ago.

At the same time it is still the day of small things. Many of the immense totals which make up the hundreds of millions contributed to the Red Cross and the Y. M. C. A., the vast Liberty Loan and War Saving issues, are composed of an overwhelming number of small amounts. And so it is with the war gardens—the little back yard vegetable plots—now scattered by the million over the United States from coast to coast. *United they can produce enough food to supply the equivalent of all the rations needed by an army of a million men for many months.*

THE other method by which the food supply could be increased, it was seen, was by conservation. There must be added production but at the same time there must be no waste. If the growing demands of the Allies and of the armies were to be taken care of, it was necessary that both means be employed to the utmost. The National War Garden Commission, therefore, has been as active in urging the conservation of food as in urging its greater production. It has called on the home food producers to save all the product of their war gardens, to let no particle go to waste; what could not be consumed at the time it ripened they were advised to can or to dry for future use. This campaign too, like that for the planting of vacant lots, has been nation-wide; in fact, it has become international, for Canada and other countries have appealed to us for assistance and advice in getting similar campaigns started among their people.

FOOD is the big word in the world war to-day. It is the basis and foundation of everything else that is being accomplished. A nation or an army might maintain itself for some time without certain other factors that are considered necessary to self defense. But without food it would soon become necessary to surrender to the enemy. Famine stalking through the land would devastate it more quickly than could the guns or the gas shells of the other enemy.

Few people realize the scientific fact that all food and all clothing, without any exception, is first produced by the action of sunlight on the foliage of plants and that were it not for the wonderful chemical engines installed in the foliage of plants no life could exist on the earth. *It is only by the improvements*

Over in England they are selling bones at the rate of 5 pounds for 25 cents, the police regulating a long line of patiently waiting purchasers anxious for a chance to enter the store. Over here bones, fats and other scraps of food still go to waste in garbage pails. Grow more crops, save food, and carry on. (Official Press Bureau photographs, London).

made in plants that our present civilization has been made possible.

IT WAS becoming evident ten years or so ago to every American with a clear vision of the trend of events that the constantly accelerating movement of the producers of food from the farms to the cities must result sooner or later in greatly increased prices and the consequent suffering which always accompanies a loss of balance between production and consumption. The war greatly accentuated this.

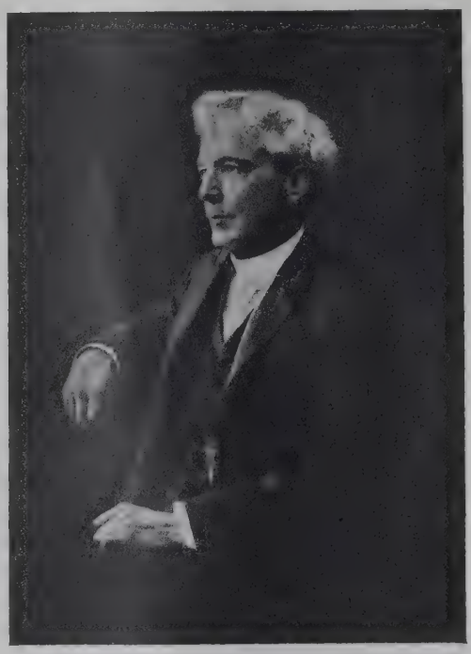
This menacing condition was realized by a number of people, particularly by those who had been giving close study to the subject. This awful war into which most of the world has been plunged made the condition all too evident to everybody. What was to be done? Starvation was paralyzing the arms and taking the lives of our allies over the seas; and the owners of gardens, orchards and farms were called upon to quicken every nerve to meet the deficiency, while those who were most able and who had been of most assistance in the production of food were called to the aid of our allies who were defending the right to live in peace upon the earth.

THOSE who cultivated the soil could hardly do much more than they were already doing; and it was becoming evident that food which before had been taken as a matter of course was in reality the foundation of all life, all knowledge, all progress. What could be done? It became necessary to conserve carefully what already had been produced; and then to produce more. Agriculture and horticulture had not generally been taught in the schools and the old "hit or miss" plan of farming was all too common; the home garden was neglected and the school garden was a novelty. Both in the call to conservation and to increased production the American people have responded nobly. How quickly they have changed their attitude, how splendidly they have made good by adapting themselves to the new conditions! There is not a class of American citizen, not a branch of industry or commerce, not an occupation or business that is not represented in this effort to help win the war through adding something to the nation's food supply. Men, women, and children have gone into the home food production work with equal enthusiasm and determination.

And a fine example has been set to the American people by the lads in khaki who are preparing to fight the battles of democracy. And they have planted war gardens at their camps. The first of these "real war gardens" was planted by the Commission at Camp Dix, New Jersey. When everything was ready for the planting nine big truck loads of seeds, fertilizer, machinery and other supplies were rushed over from Philadelphia and in short order the ground was made ready. It is estimated that more than a million pounds of potatoes will be grown this season. There are thirty acres of onions and the same area of each of the following: Peas, beets, beans, sweet corn. Lieut.-Col. Edmond Tompkins, quartermaster at the camp, has as many as 48,000 men at his table some days; and the assistance which the big 400 acre war garden is going to be to the larder is greatly appreciated. The saving in transportation of food is another factor which had much consideration in starting this work. Lieut. John F. Bonner, because of his practical knowledge of farming, was placed in active charge of the work. One hundred and fifty men were assigned to this service. They consisted of alien enemies, Germans, Austrians, Turks and others who could not be taken into the active duty; "conscientious objectors" and men who were not physically fit for overseas service.

The example of the soldiers helping to feed themselves is one which must serve as a further inspiration to the American people. If any added spur were needed, this would furnish the incentive.

The inauguration of the war garden plan at Camp Dix quickly led to its spread to other camps. At many of them there was land available for food production purposes, at Camp Funston this amounting to as much as 20,000 acres. Plans were made to have as much of this as possible worked this summer. At Camp Grant, near Rockford, Ill., 300 acres of the 1,000 available was promptly planted, with the promise that the balance would be used before the season was over. At Camp Devens, near Ayer, Mass., there was 250 acres turned over for war garden purposes. In this case a group of 100 enemy prisoners were taken from Fort Oglethorpe, Ga., to do the farming. At Camp Dodge, near Des Moines, Iowa, 100 acres were planted in corn, beans, onions and other vegetables for the men.



Luther Burbank, whose name is quite familiar to gardeners as a plant breeder and introducer of novelties, is an active member of the National War Garden Commission

Similar work was done at many of the other military establishments throughout the country.

The army must be fed. That is the prime purpose in all the efforts being put forth for increased food production. If the army could not be maintained there would soon be nothing but destruction ahead. The civilian populations must also be fed; but they must back the armies both by their work and by production and conservation of food.

NOT one ounce of garden produce should be allowed to go to waste. The need for conservation has not been brought home to the people of the United States as deeply as to the inhabitants of some other countries, England, for instance, where they sell bones at the butcher shops at five pounds for a shilling. In this country these still go into the garbage pails; and with them too often precious scraps of meats which it would be thought a crime to throw away in France or Italy or any other European country. Every bit of food that is raised should be used. If it cannot be consumed at the time it ripens, it should be canned or dried for future use.

THE value of home canning and drying as a patriotic service increases with every day the war is prolonged. Every added day sees the world's food stock lowered, for the number of people engaged in producing food decreases in proportion to the number who are merely consumers. The only way this increasing shortage can be overcome is through the stimulation of garden production and the conservation of every particle of perishable food grown there. The cupboards of those nations which have been longest in the struggle are already bare. Left to themselves, our allies would speedily starve to death. Preëminently America's part in the war is to feed her allies. This is a herculean task. There is no doubt, however, that the American republic will live up to the high traditions and purposes which have impelled it to enter this struggle for right and liberty and that it will accomplish in food production and conservation, as in the other tasks assigned to it, all that is expected of it and more.

AS PRESIDENT WILSON said of the size of the army—"no limit" must be placed upon its numbers; it must be large enough to beat the enemy—so the American people must not limit themselves in any way in their food production and conservation work. They must raise and save every bit possible. If they cannot use it all themselves there will be someone else who will need it. For instance, to can only for one's self when other vegetables and fruits were going to waste, would be like a man in a munition plant refusing to make a gun for any one but a relative. If there is a surplus in any community beyond that community's need, the balance should be canned or saved for use in some other community where there is not enough.

It is only by this close coöperation of a united people that our food supply can be made ample to supply our needs and those of our allies until victory comes and peace and righteousness once more reign on the earth.

Thirty-six thousand canning and drying booklets were sent throughout New York to the county demonstration agents of the agricultural college at Ithaca. The National War Garden Commission coöperated similarly in many other states in home food conservation work.

Songs of the Garden Warrior

By M. G. KAINS

Camouflage?

Have I caught a little thief,
Little bug?
Underneath this curly leaf,
Calm and snug?
What? You're playing hide and seek?
Wanted me to stoop and peek?
In the leaf I see a leak
Little bug.

You were boring for some food,
Little bug?
Knew it was there and knew it was good
So you dug?
Don't you know the plant is mine
Roots and fruits and leafage fine?
I did not call you to dine,
Little bug.

Oh, you have an equal right,
Little bug,
Which you now, with all your might
Mean to hug?
Don't you do it, bug, beware;
Here comes nicotine, take care
Requiescat in pace!—there—
Little bug.

Do You Know When Fruit Is Ripe? M. G. KAINS

There is a "Psychological Moment" in the Career of a Peach or Pear, etc., Which to Miss is to Lose the Best of the Season's Effort

IF YOU don't know when an apple is ripe trust the ubiquitous small boy. He can tell at a glance which apple is ready for the mouth, which for the basket, and which should remain on the tree. It's a matter of color and development of the skin. In general the "green as grass" look has been replaced by a more waxey finish and the fruit seems to say "I'm ready." Some people say the seeds should be brown; but many apples have brown seeds before they are fully matured so the appearance of the skin is the safer guide.

Too much care cannot be exercised in gathering APPLES, PEARS, PLUMS, APRICOTS, and CHERRIES. These trees bear their fruit mostly on "spurs" or little twigs which live from year to year—often for twenty years when left alone. To break them off is to reduce by that much the ability of the trees to produce fruit; for a fruit spur once gone is gone forever. The only time when spurs may be advantageously removed is when there are too many of them and the fruit is becoming smaller each year. In well managed trees such cases are rare. *In gathering the fruit, therefore, give the stalks a twist instead of a pull to remove them, they will then tear loose at the proper place without injuring the spurs.*

* * *

For canning WHOLE gather peaches just when they "give" slightly when pressed gently between the fingers and the thick part of the thumb—that is, with the whole hand, not with the tip of the thumb. They will thus not be bruised. For slicing let them get a little softer, but for eating out of hand when no one is around to insist upon "manners" let some of them become "bags of flavor" by remaining on the tree in protected places so the wind won't make them fall—the interior parts. Then puncture a hole where the stem has been removed and squeeze the fruit slightly as you suck the juice. Talk about ambrosia! nectar! and their synonyms! The gods had nothing like this—if you have a peach as is a peach.

Can you guess which watermelon is really ripe? It is easy with a little care to tell positively

So far as harvesting is concerned PLUMS may be divided into two classes; the soft juicy ones, and the meaty kinds. The former must be picked promptly as soon as ripe and handled gently to prevent breaking their skins; the latter may be allowed to remain on the trees longer. In the far West they are usually allowed to fall upon the ground or are gathered by jarring into sheets because they are not injured and it is cheaper to gather them in this way. The soft kinds spoil far more quickly than do the meaty ones so they must be eaten or cooked soon after being gathered. The meaty kinds may be kept in humid climates such as that of Long Island for a week or a month and in dry ones even longer without serious deterioration. Nevertheless it is generally better to dispose of them soon after harvest.

The way to get choice grapes is to slip paper bags over the bunches just as they begin to ripen. It delays ripening a few days, but then ——!

* * *

The GRAPE must be allowed to become *fully ripe* before it is gathered; it does not ripen in storage. Wait until even the slowest maturing berries of the cluster are ripe. No harm will usually result from allowing the clusters to remain on the vines *after the fruit is ripe*, for a few days or even several weeks in some cases because the berries become sweeter the longer they stand—unless there is danger of rather severe freezing. Both foliage and fruit will withstand the light frosts of early autumn. Indeed the long keeping varieties will keep all the better if allowed to remain on the vines until late in the season. Varieties which "shell" or "shatter"; that is, drop their berries badly cannot be allowed to remain on the vines more than a few days after they are ripe.

* * *

FOR CULINARY purposes never allow fruits to become "dead" ripe. Not only are they then much more "mushy" than when gathered earlier, but they will lose a great deal of that delicate flavor and aroma that makes them so delicious when eaten out of hand. Best results in canning and preserving are secured from fruit that is mature but has not become fully ripe, because such fruits not only retain their shape better than do soft ones but the acids that they contain help to preserve them and to hold the flavor. In cooking such fruit still more of the flavor may be retained when only the least quantity of water or syrup is used, when the temperature is kept so low that the action is rather a *simmer* than a *boil*, and the vessel in which the cooking is done is kept closed until after the fruit is *steam cooked*. Cooking with the skins on emphasizes the characteristic flavor still more. This has special reference to the making of apple and other sauces, "butters," and the like. A colander will separate the skins and other waste from the "sauce."

* * *

BORDEAUX stains are both unsightly and unwholesome, even poisonous, so it is necessary to get them off the fruit on which they have lodged because of spraying. Don't waste time trying to rub, scrub, or wash them off. Here's an easier way: Place the fruit in a frying basket or something else with an upright handle and loose or open sides. Then dip into a crock half full of weak vinegar. Move it up and down three or four times, rapidly enough to make a current. Lift it out and dip similarly in clean water and allow it to dry. You will be delighted to find that it is clean; for the acetic acid of the vinegar combines chemically with the copper sulphate and the lime of the bordeaux mixture, and forms the much more soluble acetates of copper and lime, the last vestige of which is rinsed off by the water.

* * *

For finest flavor in CANTALOUPES never allow the fruits to part naturally from the vines because they are then likely to be "flat" and "mushy." Again, never cut them be-

Pears should never ripen on the tree. Lift with an upward, outward twist. If ripe it will come off

cause they are then likely to be too immature. The safest way to judge when a cantaloupe is ripe is to note when the stem begins to crack at the point where it joins the fruit. At this stage the fruit will be firm, almost hard. They may be kept in a cold place for several days or a week, if necessary, or they may be ripened in a day or two by keeping them in a very warm place, such as a closed greenhouse or a hotbed with the sash on—preferably not touching the soil but on boards or bricks. As the fruits naturally ripen first at the blossom end, they should be turned once so that the stem end will face the sun. This will tend to make the flesh of uniform thickness and quality. When the rind begins to feel springy but not too soft, wash the fruits, let them dry in a breezy cool place, then lay them on the cellar floor and later in the refrigerator, so as to be cold when eaten.

* * *

When is a WATERMELON ripe? An experienced grower will point out each ripe one in a field but that is because of his trained eye. Steps in this training are about as follows: Note the color of the unquestionably immature—the "green" fruits. Compare this color with that of a specimen apparently riper. The "green as grass" look and the whitish bloom have gone! Also the skin of the ripe specimen is *harder to dent* with the finger nail. Now look for the tendril or curl on the vine opposite to the fruit stem. Generally this dries up about the time the fruit is ripe. But don't be hasty. Turn the fruit over and examine the underside. A creamy color is a further indication of ripeness. But wait yet. "Fillip" your finger against the fruit; then do the same to several undoubtedly "green" melons and carefully note the difference in sound. To quote a colored mammy's instructions to her son: "If dey says 'plunk' dey's green; but if dey says 'plink' dey's ripe!" Again note differences in color and then as a final test "plug" the fruit; that is cut out a pyramidal piece about two inches square. If it is greenish or white—you have been too hasty. If it is ripe, your palate will approve your judgment.

☞ *Gather the fruits of apples, peaches, plums, apricots and nectarines as soon as they are ripe enough to use either for cooking or for dessert; for thereby you conserve the plant food and direct it into other fruits that are ripening and make them larger, finer and somewhat later.*

* * *

Now is the time to prevent disappointment common at grape harvesting time—rotting of the fruit. Of course spraying with bordeaux mixture will do wonders as a preventive of this fungus malady, so use this spray freely. But still more may be done to get really CHOICE GRAPES. Having done the fundamental work now cover each cluster with a common manila paper sack or one of the special wire topped bags made for this purpose and procurable at the stores that handle gardeners' tools and accessories. They should not cost more than one cent each even in these war times. All that is necessary is to slip a sack over a cluster, crumple its top so it won't slip off and then wait till the fruit is ripe. This will usually be two to five days later than with unsacked fruit but the heightened quality and increased size will more than compensate for the delay. Besides, one can thus be far more sure of having ripe instead of rotten fruit.

As soon as possible after fruit has been plucked from the tree or bush, place it in the shade so it will not become scalded by the sun. As an experiment (to test the value of this suggestion) have a few specimens in the full sun for a day after being gathered. Place these in a cool room in the house with some others picked at the same time but kept in the shade as soon as gathered. Then note from time to time which lot keeps best and which tastes best. Your eye and your palate will be arbiters.

* * *

The PEAR is the one fruit that *should never be allowed to ripen on the tree.* When it does, if it is an early variety it is prone to become "flat" in flavor and in many cases rotten around the core. The worst offender in this respect is probably Clapp's Favorite which if allowed to hang on the tree until it tempts the eye, will either fall with a splash of decay or squeeze through one's fingers if grasped too roughly. The later varieties, if allowed to hang too long, usually develop grittiness around the core. They are mature when they have reached full size and will part readily from the tree without either breaking the twig or the fruit stem. The sure way to know which ones are ready is to lift the fruits, one by one, upward and outward so the stem forms an angle with the twig quite different from that at which it hangs. If the fruit does not separate from the twig after it has been moved through an eighth to a quarter of a circle, it is not nearly ready; also if the stem or the twig breaks the fruit is too immature. After gathering handle the fruits as carefully as eggs to avoid bruising, then store them in a bureau drawer, a clothes closet or some similar place where there is little or no circulation of air. Look over the early varieties every two or three days and remove the ripe ones for immediate use. Later varieties may be stored like winter apples—handled carefully and kept cold until a week or two before they are needed as ripe fruit. They may then be placed in warmer quarters as just suggested for early varieties.

Prepare Now to Save It for Winter

What to Do to Be Sure of Getting Best Results in Keeping the Garden Products for the Lean Months

GROWING the crops for winter is only one half of the work. Equally important, of course, is *keeping them properly.* And to do this it is necessary to make plans in advance and to have all preparations made to carry them out thoroughly. In other words, preparedness now for the winter campaign is just as essential as spring preparedness was for the summer campaign.

THERE are, of course, three general methods of saving for winter. While many things can be kept by two or even by all three of these methods, it should be possible to figure out in advance about how the different vegetables will be proportioned. The three methods of keeping vegetables for winter are, in brief, 1, storing; 2, canning and pickling; and 3, drying or dehydrating.

To begin with, there is the question as to what can be saved for winter and the best way of saving it. To be *stored* are dried beans, cabbage, carrots, onions, parsnips, potatoes, salsify, squash, and turnips.

To be *canned* or *pickled:* asparagus, string beans, lima beans, beets, cauliflower, swiss chard and other greens, sweet corn, cucumbers, melons, onions, peas, peppers, pumpkins, rhubarb, spinach, squash, tomatoes.

Especially good for *dehydrating.* green beans, beets, cabbage, sugar corn, horseradish, green peas, sweet potatoes, squash and pumpkins.

How Much Space Will Be Required?

THE first consideration is room. This can be quickly estimated as follows: Every bushel of root crops or potatoes to be stored will require about 2,200 cubic inches of space. This is the approximate capacity of a box with inside measurements of 13 x 13 x 13 in. The same rule applies to the various fruits. Allowance must be made, of course, for the space occupied by the containers themselves; if the product is to be put up in barrels or crates, this will amount, roughly, to 25 per cent. more.

Products which are canned or preserved vary considerably in the amount of space they will require in relation to their bulk as gathered. Some things, such as corn on the cob, occupy considerably more space canned than before. Others, *especially* peas and pickles, and such things as have to be "cooked down" before being "put up" take up considerably less space. As a rule there will not be above a pint of product for each quart of raw material. A dozen quart jars occupy approximately a space of about 1½ x 2 ft. One of the convenient things about cans and glasses is that they can be packed in boxes and stored on top of each other so that no space is wasted.

Vegetables to be dried or dehydrated will lose from three quarters to nine tenths of their bulk and weight. The finished product is kept best in paper bags, or in waxed paper cartons or containers which can be stored in cans or in boxes. Where space is a serious matter in saving products for winter dehydrating is of the greatest advantage.

What You Will Need For Storing

THE general principle of storing is to keep as many things as possible in normal condition by controlling the temperature and the moisture. The majority of things require to be kept cool and fairly dry—a temperature between 34 and 40, and the air neither saturated with moisture, as in a damp cellar, nor as dry as in a heated room. Many things may be stored successfully outside in pits, etc., and will keep longer than even in a good cellar. The disadvantage is that they are difficult to get at during the winter months.

Out-door Pits and Frames

THE simplest form of keeping vegetables for winter is a "hole in the ground" covered over with soil and litter to keep the contents from freezing. This may be elaborated upon as much as may be desired. The essential thing is to have the pit in a *thoroughly well drained* spot where there can be no standing water in the bottom of the trench or pit. In making a pit of this kind, plan in advance and have on hand ready for use in the fall enough clean cinders or gravel to make sure of good drainage at the bottom, and a load of marsh or soft hay or clean straw for covering directly over the vegetables,

and more of the same material, or dry leaves, for mulching over the soil. Some boards, which should be preferably uniform in length and width, but which may be second hand or random stuff, should also be secured for lining the trench, and for making divisions between the different vegetables to be stored.

Get the Cellar Ready

A LARGE amount of the spoilage of vegetables and fruits in cellars every year is due to the fact that the cellars are not *thoroughly cleaned* before the new crops are put into storage. Half rotten boards, cobwebs, dried pieces of old vegetables or fruits, "mummies" laden with germs, are allowed to wait in ambush as it were, for the new crops to be put in. *Clean out the cellar as clean as a whistle*—flood it with light!—so that you can see into every nook and cranny. If there are any rat holes, plug them up with mortar with which a little broken glass is mixed for good measure. Rip out any old bins or partitions which may be half decayed. Sweep down the cob-webs. Write to the Department of Agriculture at Washington, D. C., for specifications for Government whitewash and give a thorough coating to walls, ceiling, partitions and so forth. And then follow up that with another one a few weeks later. Let the whole place get aired out until it is sweet, clean, and dry. Then, when you have put in your root crops and fruits, they will have a chance, if they are sound when you put them in, of remaining in good condition throughout the winter.

Arrange for some control of the *ventilation* in your cellar. This is vital. A simple way is to use a piece of stove pipe with an ell, inserted in a lower pane of the cellar window, and long enough to carry the incoming air down to within a few inches of the floor. Then a short, straight piece is placed above this to remove the warmer air next to the cellar ceiling.

Arrange now all boxes, bins, shelves, and so forth, that may be wanted so that no time will be lost in the busy season around harvesting.

Making a Store Room

IF YOU haven't got a cellar, don't decide that you can't keep anything, but improvise some small room in its place. Just try closing up with an old blanket or some burlaps, and boards a small north room to make a real dark room of it; but leave a double opening, one below and one near the ceiling to take care of the ventilation. In a room of this kind, many things will keep as well as in a good cellar.

Combination Pit and Hotbed

MUCH more satisfactory than the "elementary pit" or "trench" is a permanent pit made of heavy boards, or much better still, of concrete. This can be made in such a way that it may be used as a pit for winter and as a hotbed for early spring. It is merely an extra deep hotbed with thorough drainage, so arranged that when the bottom part is filled with vegetables for winter use, a movable false bottom can be put in a foot or so down from the top—leaving a space between the false bottom and the sash, or shutters to be filled with leaves or straw. This makes an outside cellar of great capacity, and, if the location of the different vegetables is marked, anything wanted can be got at easily, even in bad weather, by simply removing a sash and section of the short boards. Or the divisions of different vegetables can be made *lengthwise*, and the contents of the frame used from one end. In this way, part of the frame can be used for an extra early hotbed while vegetables are still stored in the remainder. Although it may involve a little more time and expense to build a frame of this kind, of concrete, it will pay decidedly to do so.

Equipment for Drying

THERE are three methods for drying—drying in the sun; evaporating by artificial heat, which is usually done in a small way or over a stove; and drying by the use of an air current. The equipment in either case, for drying in a small way in the home, is very simple.

If electricity is available, use an electric fan. You will be absolutely surprised at the rapidity and the uniformness with which products can be brought to the proper degree of dryness without any danger of scorching. Make light frames of wood with bottoms of muslin or cheesecloth and of a convenient size.

For sun drying, it is better to have a frame with a glass top in which to place the trays. For use over a stove, they may be merely suspended from the wall or ceiling, but much better results will be had from a small, family sized commercial dryer with removable trays and a "chimney" for carrying off the moist air.

An essential part of the equipment for drying is the provision made for cutting or slicing the vegetables. While this may be done with an ordinary knife, it will pay well to get a rotary vegetable slicer.

Do not let any space remain unoccupied. "Keep constantly at it" especially at this time as the first planted crops are maturing. Make succession plantings for winter supply and remember that good tillage, thorough preparation and constant cultivation are just as necessary now as earlier in the year

Returns from the War Garden Campaign

A Kaleidoscopic Summary of Some of the Tangible Results of the National War Garden Commission

EVERY railroad in the country has an enormous amount of land along its right of way which could be made to produce, but it has taken the necessities of war to bring out this fact. In the South, "Right-of-way Gardens" are to be seen from the window of almost any passenger train. A field 30 feet wide and a half-mile long is not uncommon, and innumerable little gardens are to be found between the ends of the cross-ties and the right-of-way fence. The Great Northern Railway has sent out information that arrangements will be made at any time with any person who wishes to use their right of way for war garden purposes—and no charge for the use of the land.

* * *

W. P. KENNEY, president of the Great Northern Railway, having authorized the planting of war gardens on the unusued portions of the right of way, E. C. Leedy, general immigration agent, sent a notice to all the road's agents urging them to do everything possible to rouse interest in the movement and thus to help save cars. "If we are to head the list in the amount of production from war gardens," he said, "it will require the coöperation of every employee along the line."

* * *

D. O'HARA, a station agent of the New York, New Haven and Hartford Railroad Company, is an enthusiastic war garden booster. He wants to see his town of Ridgefield, Conn., make a record in home food production, and for that reason he has been distributing manuals furnished by the National War Garden Commission of Washington to help along in the work. Thousands of railroad employees are thus helping to raise food f.o.b. the kitchen door and relieve transportation.

* * *

WAR gardening will not end with the war, in the opinion of W. W. Coe, manager of the Pocahontas Coal and Coke Company of Roanoke, Va., an enthusiast on war gardening. "I feel," writes Mr. Coe, to the National War Garden Commission of Washington, "that the interest taken in war gardens will not only result in a greatly increased food supply this year but will be continued for succeeding years—even longer than the war lasts."

* * *

BECAUSE OF their experience in beating the high cost of living last year, employees of the St. Lawrence Pyrites Co., at De Kalb, N. Y., are raising big war garden crops this season. Last year they planted potatoes in ground furnished by the company and despite the fact that many potatoes were frozen in cellars owing to unprecedented cold, they saved enough to bring down the local price to eighty-five cents a bushel this spring.

* * *

THE BOARD of education in Ottumwa, Iowa, detailed a trained man to devote his whole time to the 600 school children who had war gardens, and also organized clubs among adults. Committees of practical gardeners were formed and plowing was done by organizations. The park board plowed up a large tract, divided it into a hundred gardens and distributed these among the poor.

* * *

NOT TO BE daunted by the fact that their war gardens are a mile above sea level, on poor soil, Butte, Montana, High School pupils are cultivating enthusiastically, led by Mrs. Bruce E. Millikin, wife of the principal. Now the vegetables are raising their heads in the patches around the mining camps, in spite of cold nights and a short season.

* * *

A LITTLE persuasion from the Mayor of Mason City, Iowa, Hon. T. A. Potter, induced the owner of a "slacker" plot of land to allow it to be cultivated. All vacant land was listed and every piece of it taken up by a red-blooded, patriotic war gardener. "Plant every inch" is the motto of the town for the season.

* * *

THE OHIO State University, through its extension service of the College of Agriculture, is coöperating with the National War Garden Commission in a statewide "drive" to save the products of war gardens by canning and drying. Twenty-five thousand manuals contributed by the Commission have been distributed.

* * *

"INSTEAD of working on the lawn after business hours, the men here cultivate potatoes," writes H. M. Robinson, secretary of the Chamber of Commerce, Miles City, Montana, to the National War Garden Commission of Washington. The Chamber offers $100 in prizes for war gardens.

* * *

EMPLOYEES of the New York Telephone Co. at Syracuse, have leased a farm and have gone into war gardening on a large scale. Canning and gardening manuals have been contributed by the National War Garden Commission and Syracusans expect a large crop.

* * *

REV. HERBERT J. GLOVER, rector of St. Stephen's Episcopal Church, Brooklyn, N. Y., believes in helping his flock in practical, as well as in spiritual ways; and has inspired the members of his parish to plant war gardens and to can as much of the surplus product as possible.

* * *

HOME GARDENS, ranging in size from a square rod to ten acres were cultivated in Parsons, Kansas, by several hundred persons and when a heavy rain damaged the gardens, the undiscouraged patriots went to work right away and replanted.

* * *

GARDENS ARE to be seen all over Dubuque, Iowa, where the War Garden Committee has been active since early in the season. Large tracts of suburban land were cultivated by city "colonies" and much produce is being gathered.

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FIFTEEN hundred school children of Asheville, N. C., have war gardens ranging in size from 15 feet square to large plots. The Board of Trade plans to make the war garden work a permanent part of the high school curriculum.

* * *

REPRESENTATIVE Harry C. Woodward of the fourth West Virginia Congressional district, is an enthusiast on war gardening and distributes canning and gardening manuals of the National War Garden Commission among his constituents.

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STUDENTS of the Florida State College for Women are matriculating in large numbers for the summer courses in canning and gardening. More produce will be put up in Florida this year than in any previous year of her history.

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SWEET POTATOES grown in war gardens by the children of Watts Mill School (S. C.) will be sold for the benefit of the Red Cross, so Miss Daisy G. Harris, home demonstration agent reports to the National War Garden Commission.

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EMPLOYEES of the General Electric Co. at Pittsfield, Mass., have formed a club to buy food and raise and can fruits and vegetables. They claim expenses are being appreciably cut by the coöperative plan.

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POSTERS, dodgers and pamphlets issued during the war are being collected at the California State Library at Sacramento by the librarian, Milton J. Ferguson, who believes they will be valuable to historians.

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OF 2,900 students in the Salina, Kansas, schools, 1,500 had fine war gardens within the city limits. The Salina Chamber of Commerce conducted its campaign through the schools.

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FOOD POSTERS from Great Britain, France, Italy, the United States and Canada will be shown by the Canada Food Board at the annual exhibitions to be held throughout Canada this fall.

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THE VISITING Housekeeper Association of Detroit will give demonstrations of drying and canning all summer to show the women of the city how to preserve the surplus of their war gardens.

* * *

THE "CITY FARMERS" of Havre, Montana, have stimulated the "real farmers" of that vicinity to increase their acreage, writes W. B. Pyper, secretary of the Chamber of Commerce.

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IN ONE section of Passaic, N. J., 400 window hangers with "We Have a War Garden" contributed by the National War Garden Commission are displayed.

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TWO THOUSAND employees of the Hartford (Conn.) Rubber Works Company are conducting a canning and garden campaign that promises to fill every dinner pail next winter.

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THE *Kobe Yushin Nippo* a leading newspaper of Kobe, Japan, recently devoted an article to the work of the National War Garden Commission of the United States.

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B. R. TILLMAN, JR., son of the South Carolina Senator, who is clerk to the Senate Committee on Naval Affairs, has a war garden in Washington.

* * *

THE BOYS Division of the Denver Y. M. C. A. requests all boys to devote their summer vacations to productive work, preferably food production.

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THERE are fourteen thousand inhabitants and fourteen hundred war gardens in Ogdensburg, New York.

* * *

OF 497 MINERS' families living at Logan, W. Va., more than 300 have war gardens, although last year there were only 50 gardens there.

UNCLE SAM'S GARDENING

A News Feature of National Current Activities

SOME of the most interesting and practical war gardening in the country is being done in the South. Take Atlanta, for instance. It would be hard to find more whole-hearted coöperation than has been shown by the whole city—and very capable and intelligent coöperation. Atlanta's Garden Movement started in 1916, organized by the City Federation of Women's Clubs and a prize of $50.00 was offered for the best vacant lot garden. Ten vacant lots were entered in the contest. The next year (1917) the same plans were carried out on a larger scale and 400 vacant lots were entered in the contest. This year, up to the present writing (June 1st), one thousand vacant lot gardens are entered and entries are still coming in.

* * *

AS ELSEWHERE in the country where the garden movement has been so fortunate, Atlanta's has received a strong impetus from the backing and coöperation of a committee of business men. The head of Atlanta's Chamber of Commerce Committee being Mr. H. G. Hastings, President of the Southeastern Fair Association. Mr. Hasting's first act was to secure the services of a man of practical experience in gardening who should put in his whole time and act as sub-chairman of the Committee. The City Federation of Women's Clubs had a very able promoter of the Garden Work in Mrs. Alfred C. Wilson. Mrs. Wilson secured space in the Chamber of Commerce building for an office. Here literature was assembled and from here the campaign was carried on. The aid of the Ad Men's Club was enlisted—a very clear idea this of which other garden movement organizers should take notice. The Ad Men arranged a huge garden parade in which thousands of children and grown-ups marched carrying hoes and rakes and other garden implements—which suggests Joshua's idea of marching around Jericho with the lamps and the pitchers. At the end of the parade was a plowing contest: Governor Hugh M. Dorsey and Mayor Asa C. Candler competed for the prize. The Governer won and carried off a basket of vegetables and the honor of being the most capable of handling a mule and plow! All Atlanta was interested.

* * *

WITH the opening of the office and the inauguration of the campaign, speakers were secured who visited the school buildings and churches and community meetings, outlining the Garden Movement. Business houses, implement dealers and seed stores were asked to contribute supplies in order that needy cases might be cared for, and no one in Atlanta go gardenless who was willing to tend a garden. The result was gratifying. About one hundred families were fully supplied, and several hundred more helped. One large implement company donated the use of a tractor.

* * *

ONE of the best things done by the Atlanta organization, and a thing any city or town might well copy, was the opening of an office as headquarters for the distribution of plants, seeds and other supplies. Here was an opportunity for the public to get definite help in garden difficulties: a place one could go for assistance and information. The office was open all day with sufficient help to take care of the inquiries. The expenses of the office were borne by the businessmen and The City Federation of Women's Clubs. The headquarters acted as a clearing house for plowmen, gardeners, sources of securing proper implements, fertilizers and other gardening necessities. Up to date 45,000 cabbage and tomato plants, more than 1,000 packages of vegetable seed, 500 packages of flower seed, about 25 bushels of potatoes, corn, onions, and peas, have been distributed free of charge. Most of these were given by firms and individuals to be furnished to those needing them. Other supplies were secured at nominal cost. Quantities of pamphlets and bulletins have been distributed. A sub-station for the distribution of information, seed, and plants has been established in another section of the city.

* * *

I HAVE given the Atlanta method in some detail for it is one that could be duplicated with equal success in a small town or in a city. One of the most interesting publicity features is the contest of public officials for cincinnatus honors. If other cities follow the example of Atlanta, with the intense interest of women in gardening and their increasing advent into political life, it may come to be as important for a candidate for public office to show his ability for an honest day's work as to be gifted in public speaking, and skill in running a tractor may be as valuable an asset as running a political machine. At all events a would-be Senator for Oregon is running on a "war garden ticket."

* * *

MEMPHIS has 34,000 war gardens, and Mrs. T. F. Kelley, first vice-president of the Federation of Parent-Teacher associations, estimates that 2,340 acres of food stuffs are being grown within the city limits.

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COLUMBUS, Ohio, has 5,500 war gardens this year as against 1,500 last year. They are handled through the division of public recreation.

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YOUNGSTOWN, Ohio, landowners made available for gardening almost every bit of vacant land in the city and the Chamber of Commerce arranged for the plowing.

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FROM AKRON, Ohio, the Firestone Tire Company, come statistics which should encourage any manufacturer in establishing war gardens. This concern plowed a large tract, sold seed to their employees at cost, and installed a time clock to keep tab on the time employed by each person who operated a garden. There were 265 separate tracts worked. The number of hours put in by the gardeners was 15,313. Average time per garden 57. Average hours per man a week, 2 hours, 29 minutes. The value of the products was $14,205.59. The cost of seeds, labor, watching, plowing and other expenses was $2,924.56, netting the employees $11,181.03. Net value per garden $56.60.

* * *

UNCLE SAM is going a-gardening on his own account, and gardens are being rapidly established at the different Camps. Camp gardening is no matter of mere "chores." The soldier-farmers are formed into a regular company with enough drill and physical exercise, aside from having to keep up the military spirit and morale. Opportunities will be offered to the men to study farming systems, and the work will be in effect a farm training course, which will enable these soldiers, after the war, to become practical farmers. At that time, the demand for farmers, both here and abroad, will be greater than ever in history.

EVEN more far reaching is the plan for reconstruction work to be carried on by the Sanitary Division of the Surgeon General's office in connection with vocational training of convalescent soldiers at General Army Hospitals. Garden work is preëminently suitable for reinvigorating the victims of war's injuries.

* * *

WOMEN have a certain definiteness and directness—limitation, if you will—of view that bids fair to have an interesting effect on the whole profiteering system. They are perfectly willing to save, but they are blest if they will save while commission men are allowed to throw good food on the dump. And their interest in the food situation is so keen, their knowledge of it growing accurate so rapidly that our profiteers may find existence as difficult as their kindred, the cabbage worm and cutworm. Mrs. William Maclay Hall, Chairman of the Women's Committee of the Pittsburg War Garden Commission, is very definite on the subject. "What is the use," asks Mrs. Hall, "of all our work to organize women of the country for a Land Army when such things are being done? Last year when we presented the food conservation cards to the women, we were constantly being met by the same inquiry—'what's the use, when the commission men throw away the food as they do?' I determined then that something should be done, and since then have asked that I be informed of any food stuff being dumped out, and it will be secured, if possible, and distributed free to the public."

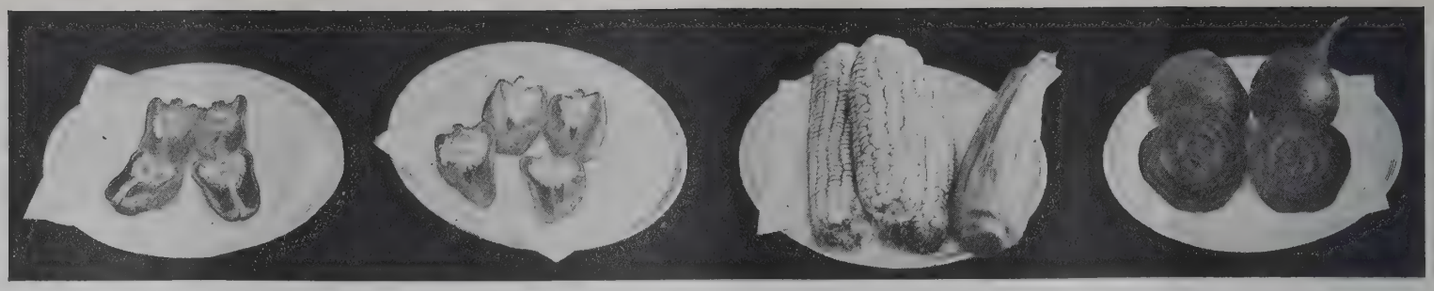
* * *

THIS dumping of perfectly good food is no myth. Three carloads of onions secured in this way will be distributed by the Pittsburg War Garden Commission, at the rate of 600 bushels a day. "These onions," says Mrs. Hall, "are both the Silver-skinned and the Yellow Danvers, the same as sell for 15 or 20 cents a quarter-peck in the stores, and there are also onions for planting. There seems to be something wrong with the food distribution, for when we give away these onions the price does not go down." An interesting remedy for such anti-social practise which one would like to see Uncle Sam try, would be to interne, as an enemy-alien, or undesirable citizen, any one detected with so feeble an appreciation of what the government is trying to do, as to throw away food. If "food will win the war," the dumping of carloads of onions is an act of aid and comfort to the enemy. The culprit should be sent to one of the farm-camps, where, if throwing away onions was his crime, then onions he should plant, and hoe, and weed, and later dry and store. After one summer's work in the onion-patch he should have too great a respect for the humble vegetable ever to so misuse it. If not, he could have another season. If I mistake not, this is the sort of remedy that Women's War Garden Committees will soon be prescribing.

* * *

THE BUREAU of Markets (Department of Agriculture) is going to give the housewife every possible market information which will enable her to keep a close tab on wholesale and retail prices, and the American housewife will be patriotic and clearheaded and determined enough to see to it that any glut in the market is utilized for canning or drying or distribution to the needy, not thrown away in a dump or convenient harbor to keep the prices up. To the housewife there is neither patriotism nor democracy in letting any one "get away" with that sort of thing, and this year it won't be tolerated—not by women whose sons, or brothers, or sweethearts, are giving their lives.

FRANCES DUNCAN.



Peppers from a 10% salt and 5% vinegar solution

Peppers from a 10% salt brine. No vinegar used

Corn from brine. Not as good as canning

Beets kept four months in 10% salt and 5% vinegar

Preserving Vegetables With Salt

E. L. KIRKPATRICK

Easy and Inexpensive Way of Handling a Great Variety of Products—Specific Directions Given as the Result of Careful Experiment and Trials Made Last Year

[EDITOR'S NOTE: *This present article amplifies the material on canning and drying in the June number and together with the article on page 298 gives our readers a complete manual of crop conservation for home use.*]

THERE are certain advantages in salting as a means of handling the surplus of the garden, although canning, drying, or cellar storing are better known. The process is simple; equipment is inexpensive; and certain desirable flavors may, in some cases, be added to the product. Produce packed between layers of salt or covered with a salt brine of sufficient strength to prevent bacterial action is easily kept for late winter and spring use.

GATHER the produce when it is in best condition for use in the fresh state, preferably *just before* it is fully matured; wash thoroughly and peel or trim such vegetables as cauliflower or kohlrabi. Fit the produce snugly into earthenware jars, between thin layers of salt and place a layer of leaves of the grape, horse radish, or Swiss chard over the top. After storing the filled container in its final place, preferably in a cool darkened cellar, pour on water or brine to cover its contents. If dry salt has been used in packing, water only, added a day later, may suffice, otherwise a 5 to 10 per cent. salt brine must be used immediately. Weight the produce under the solution with a clean stone resting on an inverted china or earthenware plate fitted closely inside the jar.

Keep the product covered with liquid continually in order that molds do not form. If desired, pour over the surface of the brine a thin coating of cottonseed oil or of melted paraffin to prevent molds and check evaporation.

Cabbage preserved in salt. Packed in jars it will keep indefinitely

Soaking Salted Vegetables for Use

ON REMOVING vegetables from the brine, rinse well in cold water, then soak in several times their own measure of cold water to draw out excess salt. Vary the time of soaking according to the kind of vegetable and to the strength of the brine used. In order to save time, change the water occasionally. Drain the soaked product, rinse well, and start to cook in cold water; bring slowly to the boiling point, and continue cooking slowly until the product is tender.

Beets. Select medium size, smooth roots, wash and pack firmly in a container. Add a solution made by dissolving ¾ pound salt in 1 gallon water and ½ pint vinegar. Weight contents down as directed above.

Kraut making. Cabbage shredded and ready to be put into the storage jar

For use, soak in cold water for two hours, changing water once or twice to remove salt. (Long soaking causes loss of color.) Cook until tender, peel and serve as buttered or pickled beets, or use in salads.

Where the proper facilities are available for storing beets, that is a cool moist cellar, where roots will keep without wilting, salting has no practical advantages.

Beans. Choose fresh, tender beans of green podded varieties. Snip off ends, wash and pack in an earthenware jar with alternate layers of salt, using 1 part to 10 parts beans by weight. Two days after contents are weighted down, add enough 10 per cent. salt solution to fill the jar.

For use, soak for 2-3 hours, and cook until tender. Season with bacon, salt pork or butter and serve as fresh beans; or chill and use in making salad.

WITH SALT AND SUGAR. Prepare as described above and pack in containers between alternate layers of salt and sugar, one cup of each to seven cups beans. The brine produced by the action of salt and sugar on the produce will cover the contents of the jar, three days following the packing. Beans kept thus hold their color much better than those preserved with salt only. They require practically the same amount of soaking and may be cooked in the usual manner. While the bright green color is retained, the flavor is considered by some as less agreeable than that of the beans preserved with salt only.

Cabbage-Kraut. Cut each head from its stalk just above the loose outer leaves, trim and cut in halves lengthwise. Remove cores from halves with a sharp knife. Cut the cored half heads into long fine shreds on a kraut cutting board. While earthenware jars make the best type containers for curing kraut, straight-sided wooden casks made of cypress or white pine will answer, if a layer of loose cabbage or grape leaves be placed in the bottom. Approximately 75 pounds of shredded cabbage (the equivalent of 100 pounds of trimmed heads) are needed to fill a 12 gallon container.

Place a layer of shreds, 4 to 6 inches deep, in the bottom of the jar and add table salt at the rate of 1 pound to each 40 gallons of kraut, a light sprinkling only on each layer of cabbage. Tamp or bruise with a clean, wooden weight until the cabbage appears to be quite juicy. Add other layers, each salted and bruised, until the jars are completely filled. Lay a quantity of cabbage leaves, thoroughly rinsed, over the tamped cabbage, fit cover inside of container and place a clean stone on to weight down the contents as the curing progresses. Store the jar or cask in any out-of-the-way place where the temperature ranges at or slightly above 55 degrees Fahrenheit, for curing. Tie several layers of chees 'oth over the jar as a protection against dust and flies.

Allow four to six weeks' time for curing at the temperature stated. Earlier in season with temperature averaging 70–75 degrees, less time will be needed, usually 2 to 3 weeks. Kraut is completely cured when bubbles cease to rise at the surface of the liquor. It is ready for use a week later. Discard the cabbage leaves and a thin layer of softened kraut from the top of the jar. When properly cured, the product is of rich yellow color and may be taken from the jar as needed, if sufficient liquor is left to keep the remainder continually covered.

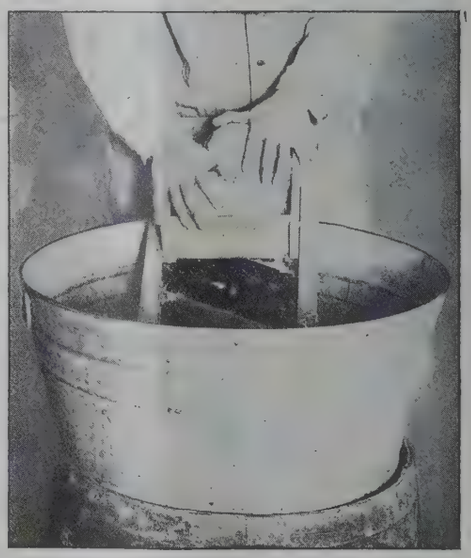
Cauliflower. Select firm tender heads; separate into parts or branches, wash, pack firmly in a jar, and cover with a brine made by dissolving three fourths pound salt in 1 gallon water and ½ pint vinegar. Cover with a layer of chard leaves and weight the contents under the solution. The product will be firm, white, and adapted for pickles and salads with little or no cooking. For other uses, rinse well in cold water and cook until tender, about 20–30 minutes.

Cucumbers. Harvest all cucumbers large enough for pickling. Use a sharp knife for harvesting and leave a short stem attached to each fruit. Cut misshapen and spotted fruits, but discard them. Cucumbers one or two inches long, known as "gherkins," make excellent sweet pickles. Those three to five inches in length may be pickled as soon as gathered, or they may be put down in brine until more time is available.

Place a layer of the fruits in the bottom of an earthenware jar and cover them with a layer of salt. Continue with alternate layers of cucumbers and salt till all the fruit is used. Cover the whole with well washed grape or horse radish leaves, to prevent the upper layer of fruits from moulding. Place a cover on top and weight it down securely. Later, add enough water to cover the fruit completely with brine of sufficient strength to float an egg. Remove plate and leaves and add other layers of cucumbers and salt as the crop is harvested from day to day.

Another method of "brining" cucumbers consists of using six parts water, 1 part salt and 1 part cider vinegar. Pack fruits securely in jar, add solution, cover with horse-radish or grape leaves, and weight down with large stone on an inverted plate.

Cucumber pickles. Remove from the brine cucumbers salted as above and rinse in warm water. Soak in cold water for three days, changing the water each day. Place in a porcelain lined kettle with enough cider vinegar to cover and heat to the boiling point, stirring occasionally with a wooden spoon. Drain



A shredding board is a convenience when any great quantity of cabbage is to be handled

off vinegar in which the pickles are heated, add fresh cold vinegar to cover, spice as desired, and allow the pickles to stand for several days or a week before using them.

Dill pickles are made from firm well shaped cucumbers, each about five inches in length. Pack alternate layers of cucumbers and thin layers of dill (stalks, leaves, and seed balls) in a large earthenware jar. Add 10 per cent. brine and vinegar solution (2 pounds salt and 1½ quarts vinegar to three gallons water), place on a layer of Swiss chard or grape leaves and weight contents securely. Allow to cure 3 to 4 weeks. Pickles when removed should be firm, and ready for use.

Pickles from fresh cucumbers. To make pickles from fresh cucumbers, wash, and pack the fruits in an earthenware jar. Cover with vinegar to which has been added 1 cup of salt, 1 cup of sugar, and ½ cup of mustard to each gallon. Add clean horse radish leaves and weight down sufficiently to keep the cucumbers under the vinegar until they are cured.

Kohlrabi. Select quickly grown, tender kohlrabi, remove leaves and roots with a sharp knife, wash and pack in jar, between alternate layers of salt (1 pound salt to 10 pounds produce) cover with grape or Swiss chard leaves and weight down securely. Two days after packing add enough 10 per cent. salt solution to fill the jar completely. Rinse, peel, and slice the product, and use for salads; or, after soaking in cold water, 2 to 6 hours, use as fresh kohlrabi in soups or stews.

Parsley. Strip from stalks, wash thoroughly in cold water, pack as firmly as possible with alternate layers of salt (approximately 1 pound salt to 10 pounds parsley) and weight down. Two days later, add a 10 per cent. brine to cover contents of the jar. Rinse well and use for flavoring soups, stews, and salads.

Peppers. Select plump, green peppers. Remove stems, pack in an earthenware jar and cover with a ten per cent. salt brine (¾ pound salt to 1 gallon water). Place on a layer of Swiss chard or grape leaves and weight down. Freshen product 1 to 2 hours and use for flavoring soups or stews. If seeds are removed from fruits previous to packing the product will be less stringent.

Tomatoes, green. Choose well developed, green fruits, wash, pack in container, cover with a 10 per cent. salt brine, add a layer of chard leaves and weight contents down. When taken from the jar for use the fruits (though probably slightly discolored) will be firm and of good quality. Freshen as desired and use in chop pickles, salads, relishes, conserve; or soak for two hours in cold water, roll in flour and fry.

Tomatoes ripe. Select medium, ripe tomatoes free from cracks or bruises, pack in jar and cover with solution made by dissolving ¾ pound of salt in 1 gallon water and ½ pint vinegar. Ripe tomatoes preserved in the salt solution generally require soaking for two hours previous to being used. Following this soaking, the skin slips off easily and the fruits can be used in the same way as fresh tomatoes. Soaking for 1 hour usually suffices, the excess salt being used to flavor the other ingredients with which the tomatoes are used. Remove from liquid, rinse, and serve on lettuce in combination with sliced cucumbers; or soak for 1 hour and use for soups, stews, scallops, or casserole dishes.

Corn in husks. Remove loose outer husks and silks, and pack ears between layers of salt (1 pound salt to 7 pounds corn) in jar, cover and weight securely. Several days following the packing add enough weak brine solution to fill the jar completely.

Corn preserved in this way, though firm and of good color is often of poor quality. Soaking to remove the excess salt usually gives the product a flat, insipid, cob-like taste. The product is only fairly well suited for soups, chowders, and stews. (The ease with which sweet corn may be dried and the unquestioned quality of the dried product secured, makes the preservation of the crop with salt a questionable method).

Other Vegetables May Be Salted

THESE directions do not represent all the possibilities of salt as a means of preserving perishable vegetable crops for home use. Brines of different strength or density with crops discussed, as well as with others, artichokes, celery, kale, onions, spinach, and Swiss chard should be given a trial. While salted products are not as desirable as the fresh article and while their food value may be somewhat lower, they afford a wider range of green foods for winter use and are particularly well adapted for making pickles and salads.

The Barbaric Oriental Poppy

SHERMAN R. DUFFY

Telling About Companion Plants for this Showy Perennial for Present Planting

ONE of the fascinations of gardening is the battle against that law of physics which declares that two bodies cannot occupy the same space at the same time. We must try to violate this law if the garden is to be the ideal beauty spot for which we yearn. And in combatting the well known law of the impenetrability of matter in an horticultural way, the Oriental Poppy offers more difficulties, perhaps, than any other subject.

Now, what will take the place of the Oriental Poppy—occupying the same gardening space, most adequately? The Oriental Poppy is bulky. It gives the touch of barbaric splendor in the garden offered by no other plant. Its season of bloom is short and gorgeous. Its decline is as ragged and disreputable as its refulgence. It must have a companion planting or else there is a bare spot—unsightly after the early days of June.

I have an Oriental Poppy bed about fifty feet long and four feet wide. Somehow or other, I want to make that bed serviceable through the summer as space is valuable. The first task after the Poppies have bloomed is to cut down the stalks to the ground, gather up the leaves and tie them to stakes, placing them in as compact compass as possible. I do not believe it to be a good plan to cut the leaves away as it seems to force them into earlier fall growth.

This done, the bed is ready for such operations as may be conducted, bearing in mind all the time that allowances for renewed growth of the Poppies in the fall must be made.

The only problem with the Oriental Poppy is how to overcome its disappearance in midsummer. The accompanying article has suggestions.

I WAS led to plant this long narrow bed of Oriental Poppies after seeing a similar planting in Garfield Park, Chicago, which was one of the most gorgeous displays I had ever witnessed. The only criticism I would make of the park planting was that it was composed entirely of the lighter, orange red or tawny shades. A selection of the scarlets and blood reds is much more effective. In my bed I have varieties ranging from the white Perry's White to the dark mulberry colored Mahony (Mahnoy, Mahonoy, or Mahogany as I have seen it variously spelled), the darkest of all Oriental Poppies and a remarkably beautiful flower.

Between the white and the mulberry there are a score or so of various scarlets, crimsons, blood reds, salmons, roses, and pinks and this is one genus of plants in which the mixture of colors seems to be as effective as a solid sheet of one shade.

I was told that the Poppies in the park bed were taken up immediately after flowering and removed to convenient quarters to pass their dormant stage and later were again planted where desired. While I know from my own experience that an Oriental Poppy may be moved safely during its dormant period or immediately fall growth starts, it is at a sacrifice of vigor the following year. I have tried the experiment of potting them up and growing them in large pots until fall when they were placed in their quarters for the following year but I do not consider that the Poppy can be developed to its full beauty in this way.

In addition, the Poppy grows readily from root cuttings; and fragments of roots which are bound to be left in the ground are likely to send up growths all over the bed in the fall—at great inconvenience to the crops therein at the time and to plans for the Poppies in reserve for this space. So, having tried it, I should say that it is best not to move the plants as it is essential to allow them to remain in permanent possession to develop the full majesty of their growth.

To permit of the best development Poppies should not be planted permanently closer than two and one half feet; and three feet, I think, is better. A well grown mature Poppy plant will have a diameter of nearly three feet and an old plant when gathered up to a stake after blooming will take a space about eight inches in diameter.

Now—What to Plant?

FIRST of all, I should name Dwarf French Marigolds or Four-o'clocks as companion plants. Either makes a beautiful mass, grows quickly, covers the ground, blooms incessantly, and allows the Poppies which will appear underneath the growth of the newcomers plenty of chance to make its fall growth. Besides, there is enough variety in color in these to obviate the criticism of monotony in an extensive bed. Four-o'clocks are particularly fine for low annual hedges, beds, or borders owing to their spreading tops and uniformity of growth. They are of simple culture and if desired it is possible to plant them directly with the Poppies by marking the place where the seeds are planting and pushing the Poppy leaves aside. This, however, is a nuisance as it is as much work and less certain of success than transplanting the Four-o'clock plants. The French Marigolds form almost an equally gorgeous display in color with their fine yellows, oranges, maroons and mahogany browns. A foot apart is the closest either should be placed.

It is quite possible to use many other annuals, notably Asters, Balsams, Mourning-brides, and other vigorous growers which stand transplanting well, but the two mentioned fill the bill remarkably well. The one essential is that there shall be at least a foot between the dormant Poppy and the nearest annual.

It is not a matter of cultural difficulty to grow the annuals mentioned either in boxes or flats, or in the open ground in some convenient spot until the Poppy bed is ready to receive them. Anybody who shies at work, can't expect to have much of a garden. It's half the fun.

Some Companion Perennials

PERENNIALS are a more difficult proposition owing to the immobility of the material. However, granting that the Pop-

pies are planted at three foot intervals—that is that a three-foot square will have a Poppy plant at each corner, there is room for a vigorous growing perennial in the centre of this square and I have used Perennial Asters associated with Gypsophila paniculata with good effect. This gives three separate seasons of bloom. The Poppies start the display and then—here being the chief fault of the arrangement—there elapses almost two months without bloom before the Gypsophila spreads its filmy cloud over the bed. Then, when the Gypsophila is turning to a warm brown, which to my way of thinking is ornamental, the earlier Asters spread their pink, mauve, lavender, and purple sprays above the dormant Poppies and ageing Gypsophilas. This arrangement was the most satisfactory of any perennial planting but I have discontinued it in favor of annuals.

Making Use of Bulbs

WITH the arrangement of Poppies above noted there is ample room for a very fine display of Gladiolus and this is the combination that I like best although there is here, likewise, a hiatus in blooming seasons; but the bright green spears of the bulbs are always attractive. To obviate the flowerlessness noted I have scattered a few seeds of Sweet Alyssum which struggles its way into bloom and carpets the bulbs without interfering with their growth.

Many people tell me that they can't grow Perennial Poppies. They can't, if they won't let them alone, naturally. Ignorance of the plant's habits is the only excuse for lack of success. The Oriental Poppy will grow in any soil but seems to flourish particularly well in light, well drained, but rich earth. It can be raised from seed with no trouble at all, and propagating from small pieces of the root is simple.

The one outstanding fact in its culture is that it loses its foliage after blooming or when moved during its growing season and lies dormant. Not knowing this peculiarity of the plant, many people conclude that it is dead and hoe or dig it up and therefore lose it.

Time Tables and Garden Truck

THE railroads of the country have been and are still strained to the utmost to carry the burden of war supplies to the seaboard. Citizens of the United States in town and country are urged to raise all the foodstuffs they possibly can in their own yards, or vicinities, so that the railroads may be relieved of much domestic freightage.

A few railroads have been accustomed to let or give their land on rights of way to employes or to farmers on adjoining lands for cultivation. Before the war the Canadian Pacific, the "Big Four" (since 1909), the Grand Rapids and Indiana, the Chicago, Burlington and Quincy, the Illinois Central, and the Missouri Pacific, have encouraged landowners on right of way and company employees to cultivate the soil. War conditions have stimulated these to greater efforts, and have influenced other lines to join them in the patriotic plan of food production.

The land along the right of way varies in width from ten feet on both sides of the track to one hundred feet on many through lines, in some cases several hundred feet—and indeed, sometimes for miles back of the tracks. To remove the danger of accidents it is forbidden to work the land closer than fifteen feet from the tracks. One other precaution is against raising tall crops, like corn or cane, near the tracks where it might interfere with the sight of the engineer.

A letter sent out recently to about 60 railroads by the United States Food Administration has brought replies from almost all. In every case there has been interest shown and willingness to coöperate in this garden campaign. The Buffalo, Rochester and Pittsburgh and the Chicago, Burlington and Quincy roads have sent in the fullest reports, and it is worth while to quote at some length from them, while taking shorter items of interest from communications from other roads.

The Chicago, Burlington and Quincy reports that it has been for some years encouraging farmers and employees to use arable land along its right of way. When the food situation became acute and it was clear that food was of actual military necessity, this road started a vigorous campaign for gardens on rights of way. Posters and other forms of publicity were employed and agriculturists were sent out to show employees how to grow vegetables.

One very good result of the campaign accomplished by the Burlington agriculturist was that "dry land" outside of the right of way fences was used for growing pinto beans. Three thousand car load lots of good beans were gathered in 1917, where hitherto only grass had grown. They are going to beat that record this season.

The tracks of the Burlington ran through miles and miles of vegetable gardens, last year, and they are going through more this summer. It will perhaps become the thing to choose the kind of vegetable garden you wish to travel through rather than the kind of train you travel in.

The Grand Rapids and Indiana Railroad is another which many years ago encouraged land owners, renters and employees to cultivate land on rights of way. With the outbreak of war it at once asked agents to encourage garden work in every way. Last year 198 persons applied for garden land and 249 acres were cultivated, producing tons of vegetables, grains, and forage food. The slogan for 1918 is 1,000 *acres of right of way under the plow.* Employees are also being encouraged to keep a pig or two for next winter's meat and fat supply.

Plot of over 20 acres at Upper Big Rapids, Michigan, at the time of its being seeded in the spring of 1916. The R. R. company cleared the land of pine stumps left from a cutting 30 years ago and put it into shape for cultivation. Last year nine permits were issued to company employees to use the land. They cultivated gardens in the evening after supper.

The Buffalo, Rochester and Pittsburgh has a fine report in which we learn the results of its enthusiastic labors since 1917. There were 1,543 applications for gardens, which were all met and the men were supplied with seed, and instructions about cultivation, harvesting, drying, and preserving. The gardens were under supervision of the agriculturist.

There were 2,150 bushels of seed potatoes bought and given to the employees of the road. This, with other seed furnished by the employees themselves, produced 28,800 bushels of potatoes, this being on a basis of 150 bushels per acre. The money value of the crop raised last year was approximately $51,431, but this is considered the least of the gains. The men were greatly benefited by the work and the interest of helping themselves and their country.

When it was discovered in April, 1917, that there was a power shortage, both man and horse, the president of the road said at once "Buy tractors and help them out!" Three tractors were therefore distributed along the line and about 700 acres were plowed for the farmers, eighty-five per cent. of which would not have been tilled had they not been given this assistance. A nominal charge of $1.50 per acre for plowing and 75 cents for harrowing was made.

It is hoped that there will be much more raised this year. Three new tractors have been purchased to assist in the work and everything is being done to arouse the employees and the farmers on adjoining lands to the need for fighting with food along the rights of way.

The "Big Four" has allowed its employees to use land since 1909. This road is one which gives the land rent free. At first the privilege was extended on application only to employees, but realizing the seriousness of the war situation, the company has extended the opportunity to outsiders. For 1918 the new form of license issued to every applicant is to be called the Liberty Garden License.

The Pennsylvania lines are very enthusiastic about this work of increased food production. Last year their first attempt was extremely successful. The road charges a nominal rent and last year had 1,200 gardens east of Pittsburg and Erie. The average size was one acre and the total value of the crops raised was about $250,000. The road issues instructions on gardening. This year it is planning a potato drive. Last year besides the 1,200 gardens there were 142 acres loaned to schools and other organizations.

The St. Louis and San Francisco last year supplied a small amount of seed and some trees, bushes, and vines. This year it is encouraging the planting especially of wheat, corn, cotton, alfalfa, and potatoes. It charges a nominal rent for the land used and issues helpful instructions.

Many other railroads are on the active honor list fighting with food as well as with transportation, the Food Administration having already heard from a score.

Mohican Supremacy

Scores of letters like these:

From Cordova, Ala.—"The Peonies arrived yesterday and I want to thank you for sending me such magnificent clumps. I have ordered three and four-year old plants from other growers, which were nothing like as large as these."

From Bethlehem, Pa.—"I have ordered Peonies this fall from thirteen different growers, and those sent by you are far and away the largest and best of all. They have overtempted me to send you this second order."

From Washington, D. C.—"The Peonies reached me promptly. I was simply amazed at the size of the roots. I had already dug the holes for them but found I had to dig them more than twice as deep and wide. Before I saw your catalogue, I had ordered from ———, and last year I ordered from ———, and while the latter were satisfactory, they were nothing like the size of yours."

There are lots of POOR Peonies; why not have the benefit of really expert advice? Our fame is nation-wide; everywhere the supremacy of our Peonies is established. It is because we are specialists in a sense which possesses a REAL value and significance; that is

WE GROW PEONIES —NOTHING ELSE

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and they cost no more from us

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Peterson's Perfect Peonies

Are the Best

They're the result of 25 years of enthusiastic, yes—loving devotion to a hobby that has grown into the greatest direct-to-planter business of its kind in the world.

And "there's a reason."

My roots not only look good upon arrival, but they produce results and produce them at once, as evidenced by letters opposite and of which we literally have hundreds.

The severity of last Winter, destroying as it did, many other varieties and species of plants, only served to show one of the Peony's strong points—it laughs at 40 below zero.

And do you know how amazingly the Peony has been developed—perfected?

My special Peony catalogue, mailed free, tells you the whole story.

George H. Peterson
Rose and Peony Specialist
BOX 50 FAIR LAWN, N. J.

315 Ryerson Ave., Elgin, Ill., Aug. 8, 1917.

The Peonies I got from you last Fall were certainly the best that I ever had and they all bloomed this year. I shall want some more this Fall.

ARTHUR SOERGEL.

Seboomook, Maine, July 8, 1918.

The Peonies you shipped me last Fall are doing splendid—all are producing nice large blooms six inches in diameter. It is THE flower for this cold country.

FRED. G. HOFFMAN.

Washburn, Wis., Oct. 17, 1917.

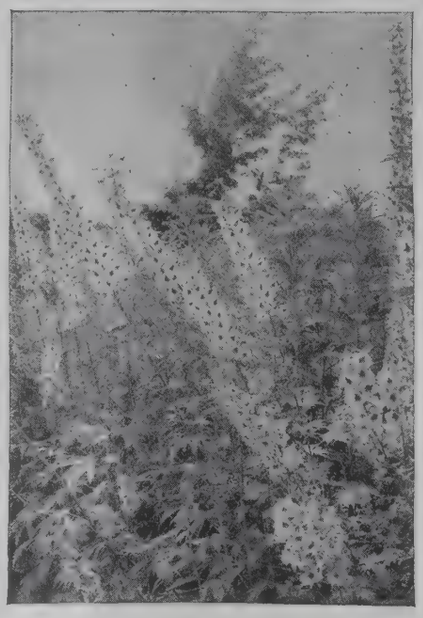
The Peonies arrived to-day. I have been buying Peonies for years, but never got such fine strong roots for the money. I will certainly recommend your Peonies.

A. P. FRASER.

Hamburg, N. Y., August 10, 1916.

The Peony roots purchased of you were the finest roots I ever saw. This year they all bloomed and the beauty of them surpassed my expectation by far. People came to see them from near and far and went into raptures over them. It is by far the finest collection in Hamburg.

MRS. GEORGE J. BRENDEL.



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Special Offer

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To introduce our new Seedling Larkspurs, we will send prepaid to any address

12 Assorted, One-Year Old Field-Grown Clumps, $5

Guaranteed to bloom continuously year after year.

SEND FOR OUR CATALOGUE "PERENNIALS FOR FALL PLANTING"

Charles H. Totty Co.,
Madison New Jersey

COMING EVENTS — CLUB & SOCIETY NEWS

Meetings and Lectures in August

(Following dates are meetings unless otherwise specified)

1. Marshfield, Mass., Garden Club.
2. Pasadena, California, Horticultural Society.
3. Lake Geneva, Wis., Gardeners' & Foremen's Asso.
   New York Botanical Garden Lecture.
5. Larchmont, N. Y., Garden Club.
   New Bedford, Mass., Horticultural Society.
6. Garden Club, Pleasantville, N. Y.
9. Westchester, N. Y., Horticultural Society.
   Fairfield, Conn., Horticultural Society.
10. Dobbs Ferry, N. Y., Horticultural Society.
12. Garden Club of New Rochelle, N. Y.
    Rochester, N. Y., Florists' Association.
    Park Garden Club, Flushing, N. Y.
13. Garden Club, Ridgefield, Conn.
14. Valdosta, Ga., Floral Club.
    Short Hills, N. J., Garden Club.
    Nassau County Hort. Society, Glen Cove, L. I.
    Horticultural Society, Lenox, Mass.
15. Garden Club, Salisbury, Conn., Lecture: Friends and Foes of the Garden.
    Marshfield, Mass., Garden Club.
16. Dahlia Soc. of California, San Francisco, Cal.
14-17. Am. Gladiolus Socy., Elmwood Music Hall, Buffalo, N. Y.
20-22. Society American Florists and Ornamental Horticulturists, St. Louis, Mo., Annual Convention.
20-21. Pennsylvania Hort. Soc. Jenkintown, Pa.
24. Dobbs Ferry N. Y., Horticultural Society.
24-25. New York Botanical Gardens, Gladiolus.
26. Park Garden Club, Flushing, L. I.
27. Garden Club of Ridgefield, Conn.

American Peony Society

THE 15th Annual Meeting of this organization which was held in Cleveland, Ohio, June 5th and 6th, was a very successful gathering both in attendance of Peony enthusiasts and of fine quality blooms. In conjunction with the National Society the Ohio Horticultural Society and the Cleveland Florists' Club joined forces. Peony enthusiasts were much interested in the sensational display of a new white American seedling raised by Mr. E. J. Shaylor of Auburndale, Mass., to which was awarded the $100.00 prize offered by Mrs. Edward Harding. This prize which was entered by the Society for the purpose of encouraging American productions, was held under the agreement that if not awarded within five years it should be returned to the donor. The gift was made three years ago and it is only this year that a sufficiently meritorious novelty was submitted to the Society. This flower which is so far nameless, is identified as Number 35. It is large, white, with strong leathery foliage and the flower somewhat in the style of Le Cygne. It is interesting to note that the west also made a good account of itself and the Brand varieties showed up in fine form. Some excellently shown blooms shown by Mr. Farr were Le Fee, Soulange, Galathee, Konigswinter, Splendida, Grandiflora, Phillippe Rivoire, Albatre, Milton Hill, Marie Lemoine, Lucy Hollis, Monsieur Barral, Rosa Bonheur, Gloire de Chenonceaux, Enchantress, Claude Gelle, and Marmontel. In the color classes awards were as follows: 25 pink Eugenie Verdier, Madame Emil Galle, 25 pink August Villaume, 25 red Phillippe Rivoire. Other varieties that stood up well were Ellwood Pleas, Therese, Glorious, Coronation, and Frances Willard. As the best Peony introduced since 1910 Brand's Chestine Gowdy and Phoebe Carey won prizes. In the class for new varieties originated since 1900 some the leading blooms were Suzette, Frances Willard, Tourangelle, Midsummer Night's Dream, Raoul Dessert, Phillippe Rivoire, Alsace Lorraine. Mr. James Boyd of Philadelphia was made President for the ensuing year, and Mr. A. P. Saunders, Clinton, N. Y., Secretary.

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The Best of All Sorts, Selected out of Over 1200 Varieties

The cream we offer in our "Wartime List." Large blooming clumps ready to give quick results. Ready in September and later.

"Dover" Collection
of 12 Prize Winners
Extra Fine for $60.00

Albert Crousse
Baroness Schroeder
Chestine Gowdy
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Frances Willard
Gismonda
Lady A. Duff
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Mons. Martin Cahuzac
Marie Stuart
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Therese

"Marietta" Collection
12 Very Fine Ones, for $12

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Augustine d'Hour
Avalanche
Baroness Schroeder
Duchesse de Nemours
Eugene Verdier
Felix Crousse
Grandiflora
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Mons. Martin Cahuzac
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We grow and create plants—our specialties are Carnations, Gladioli, Hemerocallis and Peonies. We aim to produce and distribute the best.

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They save Wheat, Meat and Sugar; they are so prolific and sweet. Dimes paid for them quickly turn into dollars; dollars to eagles. Many kinds, adapted to all soils; ripening from earliest to latest, including the invaluable Van Fleet Hybrids and seven superb Everbearing varieties. Sure to live and succeed. It is *Free*.

Our Booklet No. 2 gives full instructions for planting and culture, illustrations and descriptions.

Strawberry Specialists for 40 years

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This photo was taken when the snow was on the ground. The lettuce turned up smiling with leaves as crinkly and crisp as you could wish

Winter Your Garden In a Row of Our Cold Frames

It is an Act of War Time Food Saving Sense

YOU start it starting as early in August as possible, by planting seeds in them exactly like your outside garden. Keep well watered and growth will be rapid. Not until the Jack Frost nights, last of September, will the sash need to be put on.

During the days for several weeks more it can be left off. When colder days come, keep it on constantly. After October things won't grow much, but right up to January you can keep them in a healthy condition always ready for your needs.

Lettuce, Swiss chard, greens, carrots, beets, parsley and the like thrive happily.

Along in February, or first of March, you can sow seeds for early vegetables and the growing of plants for setting out.

Truth to tell, not half the garden folks get half out of their gardens they might, if frames were used more.

Order yours at once and get your winter garden started. Our booklet No. 215 describes and prices the different kinds and sizes, besides giving full directions how to use them.

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Builders of Greenhouses and Conservatories

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FENCE

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Ask your hardware dealer for EXCELSIOR rust proof tree guards, trellises, bed guards, railings, gates, etc.

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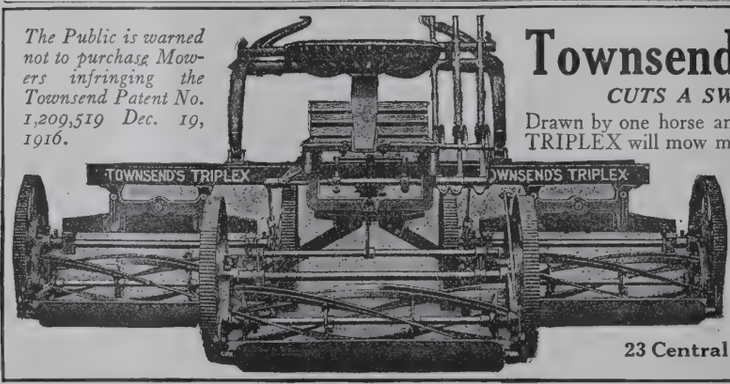

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It will mow more lawn than any three ordinary horse-drawn mowers with three horses and three men.

Write for catalogue illustrating all types of Lawn Mowers

S. P. TOWNSEND & CO.
23 Central Avenue, Orange, N. J.

Laying Plans for the Future

TRANSPLANT celery plants from cold-frame to open ground the end of July or first of August. The method of culture is given in August number of GARDEN MAGAZINE, 1916.

Weeds should be kept from the asparagus bed and it should be heavily manured with well rotted cow manure to feed the roots and thus make large shoots for next spring. Two parts cottonseed meal and one part acid phosphate 16% makes a good fertilizer for asparagus. Nitrate of soda is excellent if procurable. Do not fertilize after this month. Cut off the stalks in the fall before the seeds mature and burn them to prevent the spread of disease and insects.

Sow now for winter use Bloodroot turnips and Oxheart carrots, also the first sowing of Savoy spinach at the end of the month, and turnips for greens in winter.

Continue bi-weekly planting of snap beans and beets; the early varieties this month. Sow May King and Hanson lettuce and have the soil heavily fertilized to hasten them to maturity. These are good for fall use. Sow seed of Big Boston or Way-Ahead to be transplanted later into cold-frames for winter use.

Getting into Storage

BRING the fall cabbages to maturity quickly by frequent application of liquid manure or nitrate of soda. Set out plants of Danish Ball Head and Autumn King. These are good keepers. Make the ground rich with manure or commercial fertilizers to make large heads and last of November they can be stored in a kiln in the garden.

Take up the onions for which seed were sown in the spring to secure sets and store in a cool, dry place to be planted out in September to make large onions for spring.

Butter beans gathered when the pods are full and spread out to dry for winter use have a better flavor than those left on the vines until the pods are dry.

All dried beans and peas, and seed of all kinds should be treated with carbon bisulphide to destroy weevils—one pint to 100 pounds of seed is the correct proportion. Pour the carbon bisulphide on the seed and put immediately in tight receptacle. Be careful not to have this near a light as carbon bisulphide is very inflammable.

Preservation of all food crops is most essential—brining, canning, drying and storing in kilns are the various methods used. Drying food takes up less space than the canned products, and expense of the tin and glass receptacles is eliminated; but it is not an emergency method, for the food has to be soaked in water over night before cooking. Canning is more trouble in the beginning but the food is ready to use after a few minutes, heating. Storing the root crops is done in the late fall.

Preserving Fruits

THERE are grapes, peaches, and plums to be preserved in different ways for winter use. Fruit preserved in the sun is better in color and flavor than that which is

(*Continued on page 30*)

Reproduced from an original painting in oils, showing a beautiful group of trees on the estate of Mr. Harry Payne Whitney, the treatment of which was entrusted to the demonstrated skill of Davey Tree Surgeons

Among many distinguished Davey clients are the following:

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Father of Tree Surgery

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A Davy Tree Surgeon is made just as a good dentist or doctor is made. His skill is the product of highly capable instruction, scientific information, practical training, as well as natural adaptability and personal integrity.

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Permanent representatives located at Boston, Newport, Lenox, Hartford, Stamford, Albany, Poughkeepsie, White Plains, Jamaica, L. I., Newark, N. J., Harrisburg, Baltimore, Washington, Buffalo, Pittsburgh, Cleveland, Detroit, Cincinnati, Louisville, Milwaukee, Minneapolis, St. Louis, Kansas City. Canadian address: 252 Laugauchitere West, Montreal.

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Every real Davey Tree Surgeon is in the employ of The Davey Tree Expert Co., Inc., and the public is cautioned against those falsely representing themselves

YOUR "WINTER" GARDEN

On the Pantry Shelves

"Empty Jars are Slackers!"

A clear, concise and thoroughly practical presentation of every stage of the various processes of preserving food. It describes each operation simply and in such detail that any one trying for the first time to preserve garden products will be able to proceed from A to Z without mishap. Beside the canning of all fruits and vegetables (described in alphabetical order) the author takes up canning in honey—a new subject—and drying.

This is *the* book for the beginner, while the expert, always on the lookout for new ideas, will find it especially valuable for the many new ideas picked up from thousands of experimenters.

HOME CANNING DRYING AND PRESERVING

By A. LOUISE ANDREA

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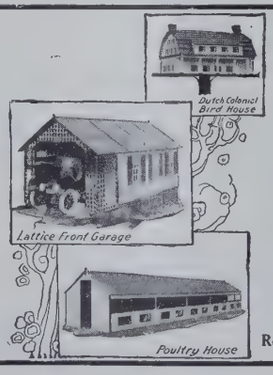

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E. F. HODGSON COMPANY

Room 228, 71-73 Federal Street, Boston, Mass. 6 East 39th Street, New York City

High Quality Pears for Home Consumption

WHEN planting fruits for home consumption quality must be given first consideration in order that one may have that which cannot be easily secured outside. The commercial grower is forced to produce varieties which can be readily shipped, the prime requisite being that the fruit shall be intact at destination. The number of varieties of Pears is enormous. Hundreds of varieties are in cultivation and the end is not yet. Prof. Van Mons devoted a large portion of his life to pear growing and raised eighty thousand seedlings! Many other Belgians were similarly interested but not to so large a degree as Van Mons. The following list of pears embracing some of the best fruits in existence will give a succession for the home grounds.

Among the leading early pears is *Manning's Elizabeth*, which is somewhat like a Seckel in form and size, and of excellent quality.

Wilder, large, fine grained, tender and juicy.

Tyson is a medium-sized pear of excellent flavor; fine texture flesh; ripens toward the end of summer; tree is somewhat tardy in coming into bearing.

Clapp's Favorite is a large pear of very good quality and ripens just before Bartlett. Bartlett is not included in this list, although for canning it might be. It is *the* commercial pear. It is not of the highest class in regard to flavor; it practically bridges the summer and fall pears, in the northern section being a fall pear. It is followed by the well-known *Seckel*, which is the standard of excellence. The tree is so free from blight that it should be included in every collection.

Worden Seckel is later than Seckel and the fruit is a little larger. The tree is not a strong grower, but the fruit may be kept up to the early part of December.

Sheldon is a high quality fall pear, medium to large in size. While the flesh is a little coarse, it is of excellent flavor.

Bosc is a large pear, distinctive because of its long neck. It is of excellent quality, juicy and of rich flavor.

Anjou is a rather large pear, of excellent flavor, fine grained flesh. It may be ready to consume the middle of autumn or held until midwinter. Owing to its long-keeping qualities it is one of the most valuable of pears. In some sections the fruit is apt to drop, but all pears should be gathered early, that is, before they ripen, and this policy should be pursued with Anjou.

Coming to the winter pears, we have in *Clairgeau*, a large pear which must be well grown in order that it may have good quality. A small pear of this variety will be of poor quality. It is ripe in November and December, and like Anjou serves to bridge the fall and winter pears.

In a similar class is *Winter Nelis*, which is one of the best flavored pears we have for early winter use.

Dana's Hovey is a rather small pear looking somewhat like Seckel in size but not in shape, of excellent quality, and is rightly considered one of the best of winter fruits.

Easter Beurre is a large winter pear of excellent flavor which is reported as maturing very well in the northern states.

Some of the varieties do not do well on dwarf stock but these poor growers will not make extremely large sized trees on standard.

Geneseo, N. Y. SAMUEL FRASER.

COLOUR IN MY GARDEN

By LOUISE BEEBE WILDER

Author of "My Garden"

¶ In the big and little gardens everywhere we are awakening to the possibilities of flower grouping with due reverence to the value of colors.

¶ The author, one of the few artist-writers in the country, has besides, rare taste and a practical working knowledge of plants, which put her in the foremost rank of garden writers of this or any other country.

¶ Mrs. Wilder says, "I like to go along as much as possible with nature, letting her give me a hint or a lift wherever possible." She has used this and her inspirations together and suited them to our climatic requirements—while many of the harmonious results have been beautifully painted by the author and used to illustrate the book.

Net $10.00, De Luxe Edition

Illustrations in Color and Line Charts

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Here's where they are grown--and they'll grow as well for You!

Babcock's Peonies cannot help but grow and bloom for you. Suitable soil, thorough cultivation, and rigorous "weeding out" of weakly kinds leave us *top-notchers only!*

Babcock's Prize-Winning Peonies

again won at the recent Cleveland Show. They captured *First Prize* for the best vase of 25 light pink blooms, besides *three Second* and *one Third prize*, for collections of single, Japanese, and other kinds. Our collection includes the best European novelties, besides the largest stock of Brand's Famous New American Seedlings in the East.

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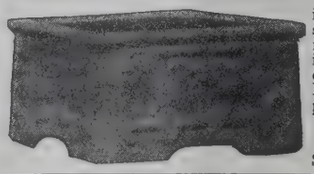

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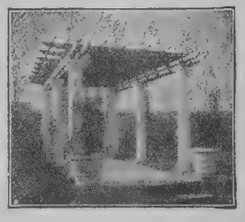

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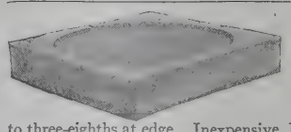

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Peonies: 20, all different, $2.50, postage paid

Oronogo Flower Gardens Carthage, Mo.

(*Continued from page 28*)

cooked by artificial heat—and much fuel is saved. Prepare the fruit as usual and spread the sugar between layers of fruit in the kettle and cook on stove for five minutes and take off and spread preserves on a platter and put in the hot sun and cover with a piece of cheese cloth. Do this for two days until the syrup jells. Fruit can be dried by cutting in thin slices and spreading in the sun in pans—or in wire trays swung over the stove. These require no sugar and can be sweetened when used.

For Next Year's Flowers

THE end of August plant seeds of perennials in the cold-frames—of herbs and flowers. New soil should be put in cold-frames. See GARDEN MAGAZINE, August, 1916, about how to prepare the soil and method of planting perennials in coldframes.

Sow seed of Snapdragon, Canterbury Bells, Gaillardia, Lupin, Delphinium, Hollyhocks, Wallflower, Columbine, Sweet William, Platycodon, Candytuft, Penstemon and Pyrethrum.

Pansies and English Daisies sowed in coldframes and transplanted five inches apart with protection in severe weather only, will bloom all winter. Set Violet plants six inches apart in coldframes. If well fertilized they will bloom in January and February.

Flowering Shoots

EARLY flowering shrubs such as Lilacs, Forsythias, and Spireas should have been pruned immediately after blooming; only late blooming shrubs can be trimmed out now. Do not fertilize Rose bushes after the first of this month as it is not advisable to encourage late new growth—it is likely to be winter killed. Keep the soil well stirred about the rose bushes and put grass clippings about the base of them, unless there are low growing annuals in the beds, to prevent the soil from baking. J. M. PATTERSON.

Whence Comes the Aster Louse?

I HAD a discouraging experience with my Asters and would like to have some advice from others having had the same trouble. From early startings I set out a large number of plants of six of the choicest varieties. They made a nice growth until August when I noticed some of the plants beginning to turn yellow and droop. Investigation showed the roots thickly clustered with a small grayish white root aphis. All plants were successively attacked and went the same way. The ground had never been used for Asters before and the plants had been sprayed every other week with bordeaux-arsenate of lead. With a second planting I worked in about a tablespoon of tobacco dust to the plant with the same result. The roots were removed and burned and the holes saturated with vermine. Has any one had a similar experience and how have they controlled it? How are these aphis introduced to the soil, and do they attack any other plants? From the fact that a neighbor two yards removed did not have this trouble with his Asters, I am led to believe that mine came in the barnyard manure I applied. The only remedy that I have had suggested is kerosene emulsion sprayed on the plant and applied to roots. Others tell me that this will stunt the growth so that little or inferior bloom will result.—*E. A. W., Pa.*

—Unfortunately your experience with Asters is not at all uncommon; but we do not think

(*Continued on page 32*)

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Lohengrin (Cattleya rose), **Pallida Dalmatica** (lavender), **Queen Emma** (waxy white), **Juniata** (tall blue), **Her Majesty** (Pink), **Pfauenauge** (the peacock iris)

If you have one or more of these varieties we may be able to substitute others. Send for our select list. Watch for Peony offer next month. All stock guaranteed true.

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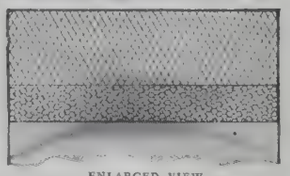

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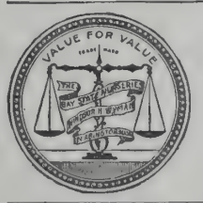

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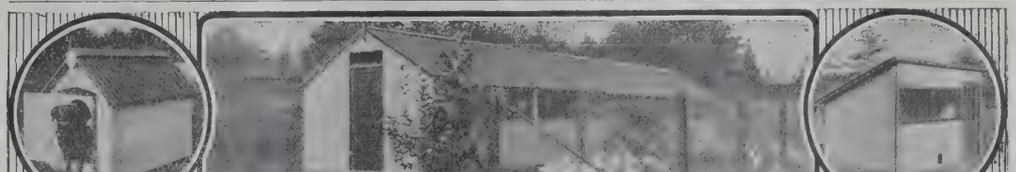

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ROBERT PYLE, Pres. A. WINTZER, Vice-Pres.
Backed by 50 Years' Experience

(Continued from page 30)

that the blame can be put to the manure used. A consensus of opinion is that wood ashes used very freely at the roots keeps the pest in check; but perhaps some reader has something different to recite.—*Ed.*

Endive, or "Chicory" of Salads

THERE is a great mix-up of terms, in the jargon of the middleman, given to the vegetable generally known as "endive." From my experience and observations, I came to the following understanding: "Esgrove," "escarle" and "escarole," are terms usually given to the so-called Broad-leaved or Batavian endive; White Curled, Green Curled, and Giant Fringed varieties of endive are very often called "chicory"; and witloof chicory is known as "endive." The Broad-leaved Batavian variety is used to some extent, mainly in stews and soups, but is not nearly so good as the curled or fringed-leaved varieties. This class of endive is highly ornamental and much more largely grown than the other. It finds readiest sale at the big city markets, at fair prices, being much prized by foreigners, although the general demand is increasing. We grow the White Curled for early summer use, and the Green Curled Winter for fall and winter use. When properly blanched this makes an excellent salad, since it has a pleasant bitter taste. It is also used for garnishing and for flavoring soups; the young tender leaves are also excellent when cooked as greens, being cut for this purpose when they attain a length of six or eight inches.

Endive resembles the dandelion in habit and growth. It requires a good supply of moisture, and should be sown where it will be least exposed to heat and frost. For early summer use, we start the plants under glass, or by sowing in the open as soon as the ground can be prepared. But, as it is used principally during fall and winter, the main sowings are made during July and August in a properly prepared bed. When the plants are about a month old, they are transplanted in the open in rows 24 inches apart, the individual plants being about 6 inches apart in the row. When sown in the open, where the plants are to mature, the seeds are sown in drills rather thickly about ½ inch deep and the plants thinned from 6 to 12 inches apart in the row.

Endive is blanched in several ways: Probably the easiest way, although the most expensive, but one that gives a very beautiful looking product, is by the use of boards in the form of an inverted letter V over the row. The whole row is usually covered with straw. The mounding method, where the earth is banked up round the plants, is cheaper and in a sense gives a little better quality, but the plants are very likely to rot by this system. We use the following methods: Early crop—when the leaves are 6 to 8 inches long, they are drawn together and tied with bast matting (or raffia) so the heart will blanch. In a month's time the plants lose their green color and become a light, creamy color. They are then ready for use. The leaves should not be tied up while wet or decay will follow. Late crop: we lift the plants with a ball of earth adhering to the roots, and reset close together in a dry, cool cellar, pit or cold-frame. There they are blanched during the winter, as required for use. Endive may be preserved in this manner until midwinter. As a rule the plants should not be blanched faster than used, because of the danger of decay.

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Grand Duc Tulips

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You who are fond of flowers will appreciate the positive assurance that you may again enjoy the brilliant beauty of Tulip beds, the fragrance of Hyacinths, and the lovely companionship of Daffodils next Spring. Fifteen million bulbs are now being harvested on our ***860 acre farms.*** These include the leading favorites in early, May-flowering and Darwin Tulips, the choicest Hyacinths and Narcissus, Crocus, and Lilies, etc. Besides, there are ready for shipment this Fall nearly 100,000 Azaleas, Rhododendrons, Boxwoods, not counting 150,000 Heathers and thousands of other plants.

We Stand Back of Every Bulb and Plant Grown at Cottage Gardens Nurseries

As the largest growers of bulbs and plants of the kinds named above, we give you the assurance that we are proud to stand back of everything we produce. We have spared neither time, nor effort, nor expense to live up to our reputation as careful plant breeders and growers, and are willing to abide by the judgment of each individual reader of this magazine as to the merits of Cottage Gardens products.

A Free Catalogue Awaits Your Request

As yet, our bulbs and plants are not sold by many dealers. We will gladly send you the name of the firm nearest you *or* we shall supply what you want, direct to you by either mail or express. Afford our complete catalogue an opportunity to further acquaint you with this, our New American industry. It is mailed Free on Request.

Cottage Gardens Nurseries, Inc.

Charles W. Ward, President

Eureka California

Farr's Gold Medal Peonies

Awarded the gold medal of the American Peony Society at the annual exhibition in Cleveland, 1918; New York City, 1916; Chicago, 1914

PEONIES are the aristocrats of the hardy garden, yet are so democratic in their habits that they thrive and bloom in the humblest garden as well as when under the care of the expert.

Few, if any, flowers give so great a return for so little care. When the plants are well established they form a permanent feature of the garden, a collection of rare peonies becoming a tangible asset which increases in value and beauty from year to year.

Peonies thrive over a wide range of latitude. A customer in Quebec, who has many rare varieties, writes that "though the temperature fell to sixty degrees below zero, not a single plant was injured." Another friend in Alabama says that his Peonies "cannot be surpassed by any in the north," while an equally enthusiastic gardener at Los Gatos, California, writes "my Peonies are fine, Baroness Shroeder has thirty-two blooms; Adelaide Hollis has eleven and Therese, which you sent me last year, is in fine shape."

Twenty years ago the lure of the Peony drew me so strongly that I began to assemble the great collection now at Wyomissing Nurseries. Since then many amateurs have come to know what the modern Peony really is and have recruited their increasingly valuable groups from Wyomissing where there is now in existence the most complete collection in the world.

The need for flowers in these times is more than ordinary. The Peony in addition to the joy it gives to our gardens, can be made to contribute to these present day needs. They are indispensable for Memorial Day, which has now a greater significance for us. They aid the Red Cross, for a single day's sale of blooms by the Wyomissing Chapter netted more than could possibly be reaped from any other products on the same garden area. The Soldiers and Sailors Canteen Club of Cleveland received over $2,000 from the sale of the blooms shown at the Peony Society's exhibition.

In order that everyone may have a collection of extra choice Peonies, I have selected twelve varieties, which I offer at an extremely low price to those who will mention Garden Magazine when they send their order.

Farr's War-Time Peony Collection

Duchesse De Nemours	$ .50	Albatre	$1.50	Mme. Forel	$1.00
Delachei	.50	Marechal Valliant	.50	Mons. Jules Elie	1.00
Mme. De Verneville	.75	Edulis Superba	.50	Baroness Shroeder	1.50
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Twelve selected Peonies (regular price $10.25), **for $7.00**

For those who wish an exceptionally fine collection without regard to price, I offer:

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James Kelway	2.00	Sarah Bernhardt	4.00
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Bertrand H. Farr

Wyomissing Nurseries Company

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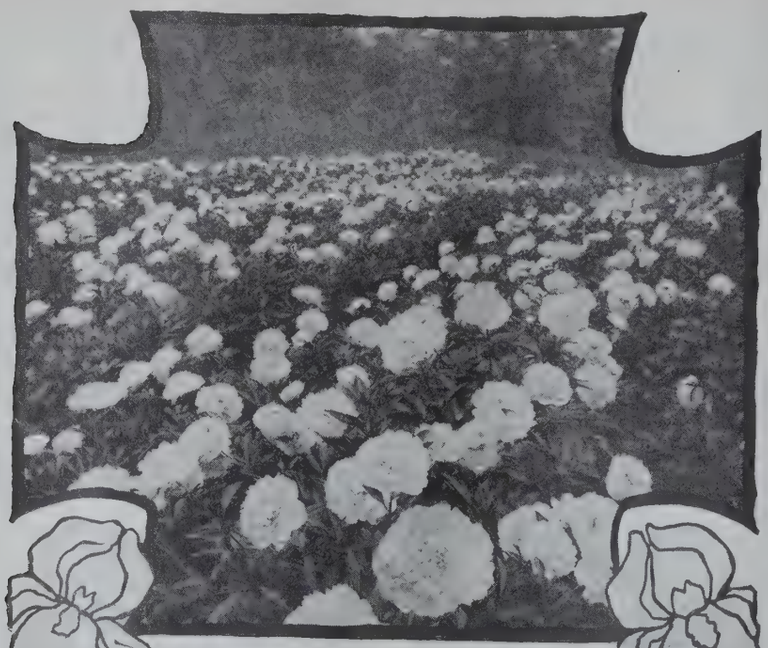

Peonies and Irises Defy Winter's Cold

OLD King Winter tries time and again to drive the Peonies and Irises out of the garden. But the warm days of spring bring them from their hiding place full of vigor and ready to make May and June gardens brilliant with color.

The Prize-Winning Peonies and Irises

grown at Rosedale Nurseries have given the greatest satisfaction to all who have added them to their gardens. One of our customers says "Plants of the kind you sent me are the kind that makes your customers order from you more than once."

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Rosedale Nurseries

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Box G, Tarrytown, New York

THE GARDEN MAGAZINE

SEPTEMBER, 1918

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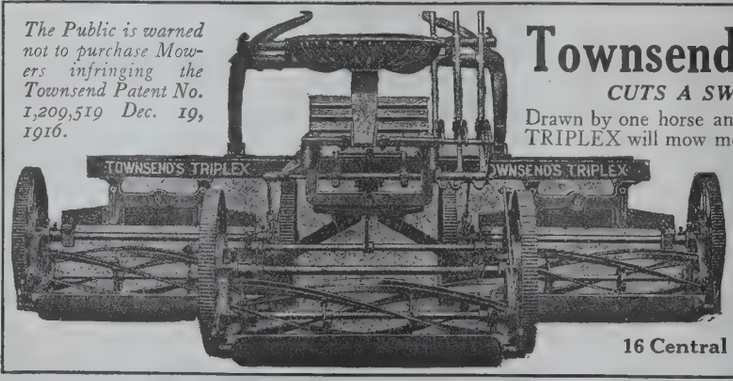

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Peterson's *Guaranteed* Peonies

claim the attention of the discriminating among hobbyists. As early as 1888, when horticulture in America was still in its infancy, we specialized in Peonies, growing over 300 distinct kinds even then. We do not claim to grow every variety known. But we *do* claim to have as comprehensive a collection of sorts of unusual merit, as can be found in this country.

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PETERSON'S

PEONIES

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Of late years there has been a multitude of new varieties of Lilacs grown, and some of them have very great beauty, but, unfortunately, almost all the stock offered, both in this country and Europe, has been budded on privet and is practically worthless, for Lilacs grown in this way are certain to die in a few years. Nurserymen bud Lilacs on privet because they can produce a large stock quickly and inexpensively; but one Lilac on its own roots is worth a score of budded plants.

Twenty years ago we bought all the available stock of choice named Lilacs on their own roots in Europe, and since then we have been both growing and buying until we have a very large and fine stock. On account of their starting into growth so early in spring, Lilacs should be ordered early.

Price, Except Where Noted, $1.25 Each, $12.00 Per Dozen

Alba Grandiflora. Large spikes of pure white flowers.

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Dame Blanche. Double; white.

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Madame Lemoine. Superb; double; white.

Marie Legraye. Large panicles of white flowers. The best white Lilac. **75 cents, $7.50 per dozen.**

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Souvenir de Louis Spaeth. Most distinct and beautiful variety; trusses immense; very large, compact florets; deep purplish red.

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Duc de Massa. Double; purplish violet; large carmine flower heads.

President Poincaire. Double; enormous compact and solid heads of flowers; very large flowers thickly set, broad wrinkled lobes; claret-mauve with purplish buds. **$2.00 each.**

Madam Kreuter. Beautiful bright rose; single.

La Tour d'Auvergne. Double; purplish-violet flowers in large trusses.

Madam Antoine Buchner. Clusters often more than a foot in length; buds carmine-pink, flowers tender rose-tinted malva; late flowering.

Souvenir de Louis Thibaut. Double; very large flowers of a reddish-purple shade.

Special Offers of Named Peonies

We have a surplus of choice named Peonies, and when the selection of varieties is left to us, we will supply them at less than half price. The varieties and plants will be first class, but under no circumstances will we furnish a list to select from.

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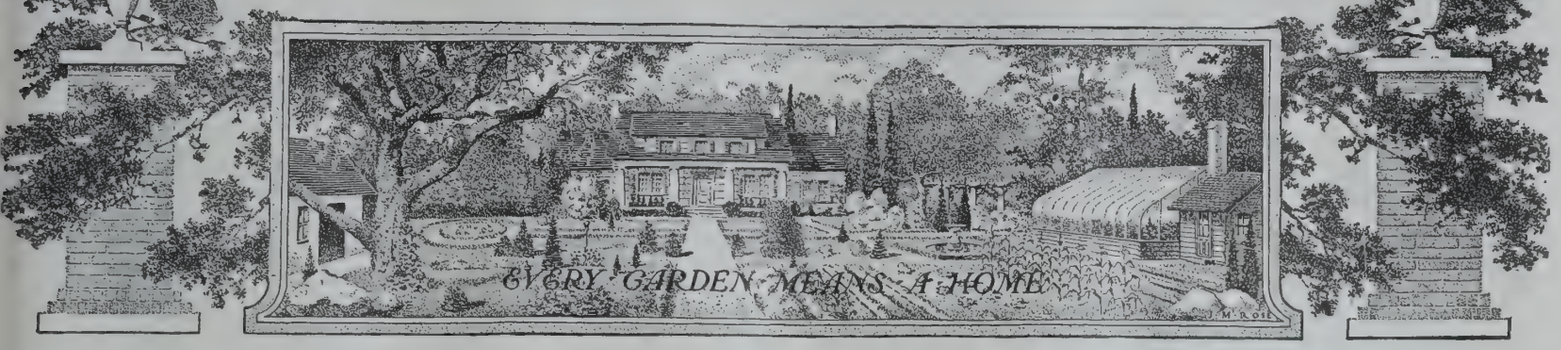
The Garden Magazine

VOLUME XVIII SEPTEMBER, 1918 NUMBER 2



AMONG OUR GARDEN NEIGHBORS

War Arouses American Horticulture

COINCIDENT with the progress of the European war, a new era of American horticulture opens up and it now seems as though what at first looked like a "lemon" will cut like a "melon." The changes that have come over the world's business hold out prospects that one of the results of the war will be the firm establishment on a world basis of the horticultural industries of this country.

The outlook certainly did seem dark in those early days of the war when a number of European horticultural industries were almost wiped out; when various embargoes and a growing scarcity of carriers made export and import exceedingly difficult; when finally some people were tempted to look upon any outdoor activity other than food production as a drag on national progress —and a billion dollar industry was in a fair way of being crushed, while the war lasted.

In a way it needed this attitude to awaken the horticultural trade itself to a realization of its own possibilities. As a class (with some notable exceptions) its members had been satisfied to trail along as the tassel on the tail of the European kite, depending almost entirely on importations to secure the staples of the business. When the foreign sources of these staples failed, the latent possibilities of those home industries that had been quietly working and developing for some years past were forcibly realized and through the veil of mist the future of sunshine was clearly seen.

American horticulture and gardening may well pride itself on the vision of those pioneers, for, when the disaster in Europe assumed proportions that made certain a long drawn-out conflict, the machines of production were all ready to be set in motion. Quickly California growers were called on for quantity supplies of vegetable seeds, the production of which a few years prior would have seemed rank folly. Tractors by the hundreds replaced the slower working men and teams. Acreages of vast proportions were planted and harvested. Systematically America set to work to become the seed grower and the seed merchant of the world. Three years sufficed to do it. Tons and tons of lettuce, carrot, radish, beet and other staple garden and farm seeds are now produced here to help our allies over a handicapped situation.

As with vegetable seeds so also the flower seed industry gathered new impetus under war pressure. German Pansies and Stocks are no more, but Washington with Oregon and California respectively produce far better. Besides being famous for melons, Rockyford, Colo., now nurses hundred acre patches of Poppies, Zinnias, and other popular annuals. The California Sweet Pea industry has assumed proportions where the product is measured in tons, and there also are produced choice strains of Petunia, the seeds of which are worth more than their weight in gold.

A few years ago a naturalist and horticulturist of no mean achievement, Charles W. Ward, formerly identified with the development of the modern Carnation in the East, went to California to seek conditions of soil and climate favorable for the production of the so-called Dutch bulbs. The Department of Agriculture had demonstrated that they could be grown. It remained for business men of vision to work out the practical problems in a practical way. To-day America is contributing her millions of Hyacinths, Tulips, etc., to gladden the spring landscape, and Dutch interests are directing their attention to the new bulb farms of the Pacific. This is but one instance of deliberately setting out to meet an existent need. But there are besides, scattered here and there over the land, centres of plant production in the hands of specialists whose introductions are now right at hand to meet the demand that cannot well be satisfied from abroad. The great cataclysm has opened up the field these pioneers waited for. Brand's Peonies, Kunderd's Gladiolus, Farr's Irises, Nehrling's Caladiums and Wintzer's Cannas are typical illustrations of how our own people were ready to supply the demands. Another interesting development of transplanting to the new world and creating a new industry is seen in Dreer's establishing plantations of Phoenix Roebelenii in the West Indies because the natural supply in Cochin China was threatened—the last seeds procured from there were gathered in 1914. Realizing the importance of maintaining a steady supply of one of the most satisfactory of all house Palms, large old plants were set out in a new country with a view of obtaining seeds nearer home.

The introduction of hundreds of hardy and tender shrubs from the wilds of China by the Arnold Arboretum has stimulated certain far-seeing nurserymen to propagate the novelties and the fruits of their work are culminating fortuitously to meet the exigencies of the time and America's gardeners will draw on new supplies of new material in the embellishment of the home garden.

To cite one instance, the Farquhars on the shores of New England acquired new acres to devote to the multiplication of these new comers. The public realizations naturally follow the actual conditions by a considerable time. Trees, shrubs, etc., cannot be turned out over night —indeed years are often necessary. These developments have been brought forcibly to notice of late, and in the wake of war come these unexpected expansions of industry to supply the home demands, because of the prevision of these men who worked for the ultimate benefit of horticultural America. And now that the field and operation has been opened up who can question but that when peace dawns we will never draw back our lines.

Now Will You Can, Dry, Salt and Store?

¶ It is all very well to have crops grow and mature so that we live on abundance during the summer season, but through the period of plenty attention must be given to the non-productive months of winter, that now fast approach.

¶ It is a national necessity that every available product of the garden that is not utilized for immediate consumption be conserved for future use, by canning, drying, salting, or storing. Full particulars as to each of these methods will be found in the earlier issues of The Garden Magazine. (See The Garden Magazine for June, July, and August).

¶ It will not be safe to depend upon the ordinary market supplies, for the government agents will requisition approximately one half of the output of the commercial canneries and preserving plants. To be specific, it is expected that the government requirements will take about one third of the total output of the canned tomatoes; about 25% of the output of canned peas, corn, and string beans; one half of the output of canned cherries and of dried peaches.

¶ We are advised in letters from Europe that the British Government this year commandeered the entire crop of gooseberries and strawberries. We in this country must exert a maximum effort to maintain and preserve the maximum of fruit and vegetable crops.

¶ The Food Administration has announced that there is no danger of the Government requisitioning the stores of home canned fruits and vegetables.

Bulb Prospects

NOTWITHSTANDING the upset and uncertainty of transocean freight prospects, the bulb dealers of the country feel confident in putting out their fall announcements that they will receive at least as big a supply this year as they did last year. Indeed in many quarters the feeling is that the stock will arrive earlier than was the case last season. At all events the Dutch growers report that the stock is in good condition and sufficient to fill the limited orders that have been placed. The French bulb growers do not speak so favorably because interior transportation in France is a very uncertain factor. While the whole of Holland is devoted to

bulb culture the industry in France is decidedly localized with the centre at Ollioules, where there are some 4,000 acres devoted to the cultivation of the various Dutch and Cape bulbs. The present prospect would seem to indicate that whatever stock is offered this year should be taken care of and preserved as far as possible, for although this year's supply seems reasonably certain, no one can tell what will happen by another twelve months. Readers placing orders for bulbs for fall planting are advised to specify that delivery should be by express, because the sooner they are in the ground the better, and the uncertainty of delivery by freight is surely not worth risking.

Fertilizer for Window boxes.—One of the most satisfactory window boxes that I have ever seen was due to the use of a fertilizer com-

Because of the small quantity of soil in a window box it is well to use a good fertilizer

posed of manure and the parings from hoofs which had accumulated in the cellar of a blacksmith's shop having been swept there after the daily floor cleaning. The dressing was not taken because of any feeling of its great worth, but in desperation. It was put into the boxes with a small proportion of loam and its beneficial effect on the plants was noticeable almost immediately. The Geraniums in particular showed an increase in the number and size of the flowers but it was really the depth of color of the blossoms that attracted attention. The streamers too, Vincas, sent up shoots from the roots and the leaves were dark green and yellow and in great abundance. The remarkable part was that the plants in the boxes flourished right through the season without showing the usual slacking up in the late summer and when the frost came they were looking their best. The one difficulty about this fertilizer is the difficulty of getting any great supply of it. The auto has driven the Village Blacksmith from the forge to the gasolene can and so it will be necessary to search out a forgotten supply of fertilizer that is hidden in some abandoned blacksmith shop. Look for it this fall.—*L. J. Doogue, Mass.*

Trees as War Monuments.—It may be that after this war is over, every little town will have its granite monument to commemorate the men who have fought, just as they now have monuments for those who fought in the Civil War. There is, however, something about a tree monument that takes hold of one more than does a stone monument. Trees can be more enjoyed by a community than can a stone fountain. They give shade, they cast an environment over the community, and they grow and thrive and become more attractive as the years go by. If the right varieties are chosen they should live one hundred or one hundred and twenty-five years and that is about as long as most of us are interested in at the present. This idea of Service Trees is one which communities generally can adopt, and I think originated with the City of Newburgh, New York.—*J. Edward Moon.*

A Practical Weeder-hoe.—I am sending you a picture, not to call attention to the face or the flower garden it shows, though both are mine, but in order to emphasize what I am going to say about the hoe portrayed. I was long ago convinced that the ordinary solid-plate hoe was a poor tool for fighting weeds and when I found this skeleton hoe I was doubly sure of it. The regular hoe is too kind to the weeds. It takes the dirt along with them and often leaves them still planted in it, but my skeleton cuts through the soil and severs all weeds, which kills them at once if they have no great amount of root development and it easily cuts them up if they have made much growth. The hoe is light, weighing only 2 pounds; it is rigid and has a cutting width of 6 inches. All I have to do is to draw it through the rows of my vegetable garden and the work is done. I use the toothed part only when the soil is hard, or to cover up my tracks if I have not walked backward in doing the work. I can tend a properly planted garden with half the work that would be required with an ordinary hoe. And here comes in my objection to the use of a rake or any sort of toothed hoe after a garden is once planted. The teeth merely allow the tool to go around the weeds and they are not injured. Yet all writers on gardening advocate such a tool and they cling to the old solid hoe. I am sure that after any one had handled my skeleton a few minutes he would stick to it. For it will do practically all the weeding, even if the weeds have been allowed to get started near the plants. The sharp corners of it will work right up to the plant without disturbing it and cut out all the weeds.

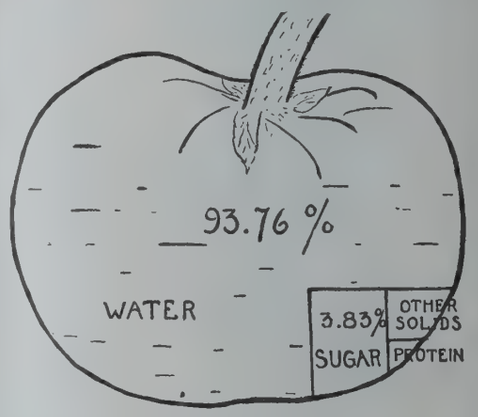
Now as to the plan of the garden. I have a very small one which is producing a large amount of vegetables, I plant without skips everything in rows only 15 inches apart, even tall stuff, like corn and spreading stuff, like tomatoes. For I never put in but a single row of the same sort, so that the one row of corn does not shade itself or anything else and the spreading sorts need not be alongside each other. All rows are run north and south. The moment any sort begins to come to maturity I plant in something that will still make a season and I cut out the "passé" stems and throw them on the compost heap.

This type of hoe which cuts but does not drag, is sure death to weeds

In this way the entire garden works till the end of the season. A garden worked on these lines is a pleasure and a beautiful sight at the same time. The work is light, the returns are heavy. I have gathered head lettuce that weighed half a pound. The Golden Bantam corn row would hardly let a small chicken through it, but it showed silks by July 10th. A short, partial row of beans turns out a wealth of spotless pods. Cabbage began to head early in July. The Wakefield will be gone before the late cabbage is in need of the room. Beets, onions, lettuce, and turnips have yielded heavily. I am still (July 20th) sowing beans and turnips and transplanting lettuce. Adding to this that the soil was not garden soil to begin with, but all sorts of made land, as most city plots are, I think our "warhelper" is making good. The hoe cost 35 cents, now 50.—*John W. Chamberlin, New York.*

[The new Gilson weeder goes this hoe one better in that the tool is loosely hung. It is the most efficient tool of its type we have ever tried—*Ed.*]

Food Value of Tomatoes.—It may be of interest and perhaps some service to call attention to the real value of the tomato as a food as well as a



mere flavoring. In its present popularity there is perhaps very little thought given to the fact that the tomato contains relatively a high percentage of sugar and on this basis alone it is worth considering. The accompanying diagram is reproduced from a Bulletin of the Minnesota Experimental Station. The sugar in the tomato appears to be changed considerably in cooking and this would seem to suggest that canning by the cold pack method is much the better way of handling the fruit. All the juice should be retained in canning.

German Potash Not Needed—It is interesting to learn that analysis of virgin soils of central and western New York shows that potash is not deficient, and the same thing is unquestionably true also of the soils of other states. Statements that agriculture is bound to suffer for lack of German potash can only be considered as another form of German propaganda. Those who spread these stories are not worried about agriculture, but about keeping up a demand for German potash. Eight samples of typical western New York soils contained from 32,000 to 45,000 pounds of potash per acre to the depth of eight inches. "Decaying humus, stable manure or stable sweepings, with lime and phosphoric acid, form the elements most needed," says the report.

Some of My Pet Peonies.—The Peony season closed in Tarrytown, June 25th and was one of strange freaks. The early varieties began blooming about a week earlier than normal and the very hot spell hurried forward the mid-season varieties to bloom with the early ones, making a most gorgeous display in masses of Festiva Maxima, Mme. de Verneville, Germaine Bigot, Gen. Bertrand, Jeanne d'Arc, Duchesse de Memours, Lemon Queen, Venus, Mme. Lemonier, Mons. Jules Elie, Reine Hortense, Marguerite Gerard, Aurora, Asa Gray, Modeste

Guerin, Triomphe de l'Exposition de Lille, Adolphe Rosseau, Mons. Martin Cahuzac, and other well-known varieties. Following the hot spell came a very cool, cloudy week which held in check the late varieties, and gave them an opportunity to develop slowly and fully, so that the most perfect blooms of some of my pet late varieties have exceeded all former displays. Couronne d'Or has been a real crown of gold, each flower a bouquet, and the long rows a mass of bloom. Baroness Schroeder with more pink than usual in the buds each opened into one grand ball of snow. Maire, her fragrant flowers on tall, strong stems, nodding a good morning to her royal neighbor, Albert Crousse, always attractive in form, fragrance, and color, makes a most attractive bouquet in artificial light, rivalling that wonder of color, Milton Hill, said by Secretary Saunders to be "beyond the power of words to describe." Americans should be proud of this variety, for it rivals many of the best foreign productions in size, habit, and color. Mme. de Falhau, always wonderful in display, has this year extended the season beyond most other varieties, disseminating her spicy fragrance from tall, erect stems, rivalling in all good qualities the last Peony to bloom, viz. Grandiflora, another Peony of American origin and a great favorite wherever known. As with several others of Richardson's productions, the compact, hard bud must be allowed to open on the plant. Gloire de Gombault is one of the most distinct and beautiful varieties, because of its extra full globular flowers, mounted on long strong stems, with scarcely any side buds; delicate coloring, salmon-flesh, shaded with apricot; centre flesh-pink, striped with carmine.—*S. G. Harris.*

"Flowers for Dessert."—I am a regular subscriber of your very valuable publication and am especially interested in hardy flowers. I appreciate the fact that a garden should include vegetables as well as flowers, and mine does. But since the war started the importance of vegetables has largely overshadowed that of flowers in the columns of the GARDEN MAGAZINE. I suppose few have complained but I have no doubt that a great many of your readers would like a change of diet. Most of them have known all along how to raise potatoes, tomatoes, etc., yet new ideas that are helpful keep coming out all will admit. Vegetables may be the main course but flowers are the dessert and a meal without a good dessert is mighty flat to me. Please let's have a square deal in the future and devote at least half of your columns to the subject of flowers.—*E. J. Eisenhart, Ia.*

Young or Old Beets—I note two statements in the June number advocating the canning of small beets in preference to the full grown, because of the coal saving in their preparation. I have found the fireless cooker of great value when cooking beets and beans. It is a saver of coal and food values; for the larger beets will, of course, go farther. If the heated soapstones are used, the beets after being brought to a boil in salted water, boil 15 minutes; they can then be put into the fireless cooker and continue to boil for three or four hours longer. After peeling and dipping in cold water, if placed in jars and covered with boiling salted water, and sealed up and plunged into boiler of boiling water and boiling continued for 5 minutes—as in cold-pack canning method—they keep perfectly. Instead of pouring over the salted water, one can pickle them by adding a vinegar solution seasoned to taste and proceed as before. In my opinion the small beets should be used only as it is desirable to thin the rows for the better development of the others. —*Mrs. H. F. Ward, Newton Centre, Mass.*

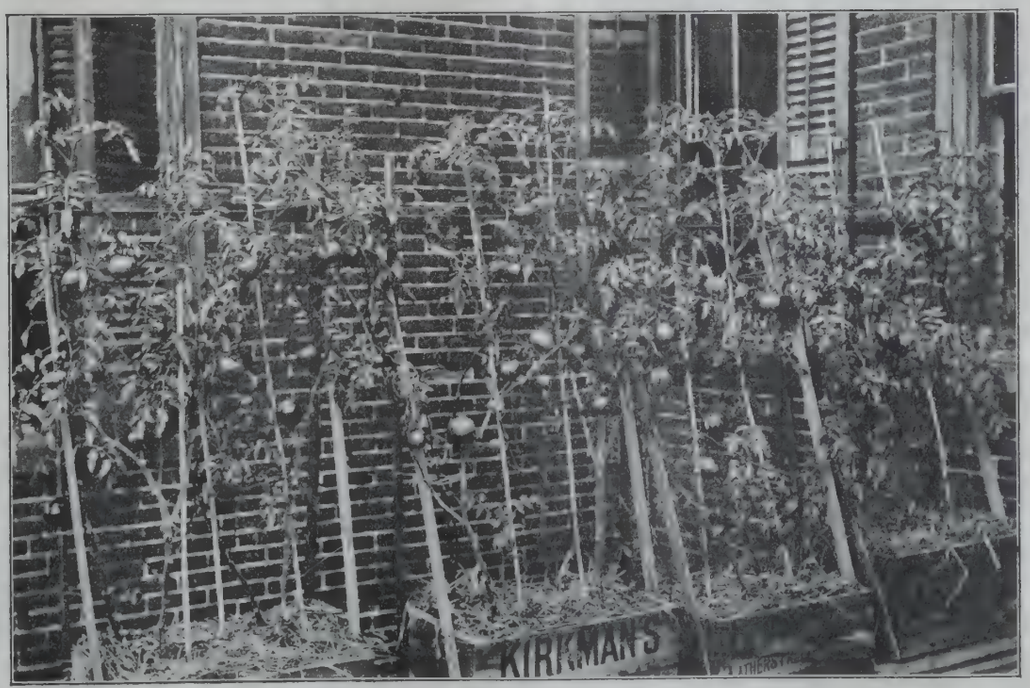
Score Card for Garden Plants.—In your April issue we notice a suggested Score Card for Garden Plants, by Mr. Sturtevant. The scores suggested would not meet the requirements for Iris grown in Southern California. Pogoniris with us begins to bloom the latter part of February, but as yet, aside from the dwarf, Germanica and intermediate varieties, we have few that bloom before the first of April, so that we consider those that bloom in March-April, other points being equal, should score much higher than those that bloom in April-May, when there is a greater abundance of flowers of all kinds. All those that bloom more than once in the year—some in the fall and winter—are more valuable and should score higher than an annual bloomer, other points being equal. There is no question about the Asia Minor varieties, and some of their hybrids, being much better adapted to our conditions, than to other locations in the States, therefore a score card of such varieties, based on their value as grown in the Eastern States would not be a just score for their value to this Coast, particularly Southern California.—*Mrs. J. Dean, Moneta, California.*

See what the common yellow lily will do if given a chance—plant 6 ft. high

A Fine Lily.—An unusually fine plant of Lilium canadense was found growing in the yard of the Olmsted office at Brookline and was photographed and measured because of its great size and beauty. It is well known as the common yellow Lily which appears at the end of June knee-high among the low Ferns of the roadside, often not much higher than the Ferns themselves. This plant has grown to a height of exactly six feet and it carries sixteen blooms while it is ordinarily described as growing from two to five feet high and bearing about two to ten flowers. Because it is usually found growing so low down in the grass few people realize the full beauty of a well-developed specimen. Its flower cluster is the inspiration for the candelabra design so well known in art and its form and habit stand out among most of the flowers we grow as an example of grace and fine bearing. To be able to look at Lilium canadense against the sky is an uncommon pleasure.—*Stanley White, Mass.*

A Roof War-Garden.—Thinking that others might benefit by my experience I enclose a photo of my roof war garden. Having no yard except a 10 x 16 ft. area closed in with an eight foot high solid board fence, I was compelled to work my war garden on the roof of the second story back building where the plants would get the necessary sunlight. Soap boxes holding more than a bushel each filled with good soil and cow manure, were each planted on May 10 with three good sized tomato plants from pots. The variety was Early Stone. These took hold at once opening their first flowers three weeks later, the first and second series of blossoms did not set owing to the cold weather but later every cluster carried one or two fruits. The first picking of six ripe tomatoes was on July 20th. The vines, trained to single stems, were supported by a lath trellis and cane stakes. Straw was laid over the surface to shade the soil and prevent baking. The photo shows but four boxes, these are fine, placed on the outer wall which takes the weight from the roof. They were given two buckets of water every evening after the second week. When photographed July 23rd 73 good sized fruits were counted with quite a few clusters setting. With a strong skeleton frame work to support the weight from the walls, the entire roof space could be covered with boxes in which might be grown almost all garden Vegetables.—*R. K., Phila.*

Oak Twig Pruner.—Several complaints of injury by this insect have been received during July from the vicinity of New York City. The presence of this rather common borer is indicated by the falling of small, cleanly cut twigs and small branches of Oak, Maple and other trees in the fall, spring and early summer and by lopping tips and wilting foliage in late summer and early fall. The borer is a legless grub about an inch long when full grown. It tunnels the

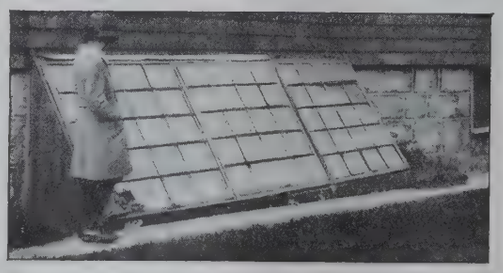


Profitable vegetable gardening on the roof of a city dwelling

twigs and smaller branches and usually eats away the interior so completely that the portion containing the pest drops as indicated above. The slender, grayish brown beetle about one half an inch long, appears in midsummer and deposits its eggs during July in the smaller twigs. This insect is not usually very injurious though occasionally trees may be severely pruned and in some instances disfigured, if not damaged by this borer. The most practical method of controlling the pest is by collecting the infested twigs in the fall, spring and early summer and burning them. This will be more effective if operations extend over a considerable area. There is a chance that spraying with arsenate of lead the latter part of July would be of some value in destroying the parent beetles before they have had an opportunity to lay eggs.—*E. P. Felt, State Entomologist, Albany, N. Y.*

Unusual Plants for the Spring Garden.—Among the many charming small perennials that bloom with the spring-flowering bulbs, the Epimediums should not be neglected. Single plants bought three years ago are now good-sized clumps although they have had no attention other than that given the entire border. Epimedium alpinum and E. sulfureum are very similar in general appearance, forming loose open clumps about a foot high, with good spikes of pale yellow flowers. E. alpinum blooms much earlier, coming this year about March 20th, while E. sulfureum come usually about April 15th. Similar in habit and time of blooming is E. musschianum with dull crimson flowers. Later in development of both leaves and flowers, are both E. niveum and E. lilacinum. These two spread less rapidly, forming tight clumps and holding the white and purplish-rose colored flowers well above the foliage. But even if there were no flowering in any of the varieties the plants would be well worth growing for the beauty of the foliage, as this shows the most charming tender pinkish tones as it develops and holds its rich green mature color well into the winter, this year lasting until the end of December. Last spring I saw for the first time, plants of Isopyrum biternatum a plant of similar character as far as the garden aspect is concerned with good spikes of charming white flowers. I am told that it will succeed under the same conditions as the Epimediums require. Together with these should be mentioned the beautiful Vancouveria hexandra from the Pacific coast. This I have not grown and know only from a garden in Cambridge, Mass., where it has formed a great sheet under the trees with its fine foliage and exquisite white flowers in the early spring. All these plants are of the small-fry of the garden although if they were obtained in sufficient quantity they would make charming ground covers in the open wood or drifts for the front of the semi-shady border. But if one is moved by the charm that is to be discovered only on closer inspection the delicacy and grace of these small plants will delight him at all times of year.—*B. Y. Morrison, D. C.*

Combined Coldframe and Hotbed for Home.—I made a vegetable garden last year and because



Utilizing the heat from the house cellar as an economical way of getting an early spring start

of inexperience I floundered around and was successful to a surprising degree in spite of myself. But while I floundered I kept my ears and eyes open and became convinced that the way to chase the "jinxs" away from any little vegetable plot is to get things going early. I looked around at the improvised hotbeds and coldframes that my friends had put up and from the lot I turned out a little contrivance of my own that is a composite of all the dreams and practical attempts I had heard of and seen. It is a sort of hotbed and coldframe combined. In the border between the walk and the house foundation I dug out a place outside my cellar windows and built a sort of miniature greenhouse. I partitioned it in the centre and from one window in the cellar I can work on my hotbed and from the other I have easy entrance to the part that serves as a coldframe. The sash were hinged at the top and while not of proper size they answered. The advantage of such an arrangement must be obvious. Early in the spring with the least difficulty I can start my vegetables going and do the necessary work of shifting from the hotbed to the coldframe regardless of weather conditions, as it is but a matter of going from one window to the other and carrying the little plants. With the aid of small boxes I have been able to handle surprisingly large numbers of plants and next year I intend to extend my area of glass along these same lines. In the summer the whole affair can be stored away.—*James Peranet.*

Fuel for Greenhouses

In some parts of the country difficulty has already been experienced in securing fuel desired by owners of greenhouses, and in a few instances the local administrator has absolutely refused to deliver any coal for greenhouse purposes. Under date of August 8, the Fuel Administration writes in response to a specific inquiry as follows:

There is no order of the Fuel Administration prohibiting the delivery of coal to greenhouses, either private or commercial, the only existing ruling being, that greenhouses should be curtailed to 50 per cent. of the average annual fuel consumption of the years 1915, '16 and '17.

You are doubtless familiar with the priority lists which specify certain industries that are considered essential to the successful prosecution of the war, and required that these be assured their full quota of coal, before the less essential industries are supplied. In the congested districts where the coal supply is short, there must be enough fuel to take care of the more essential and private heating, and have a surplus left for general distribution, and in this case, the greenhouses would have to suffer along with the other less essentials so that the carrying on of the war to a successful termination may not be retarded. There is no intention, however, on the part of the Fuel Administration to discriminate against greenhouses to any greater extent.

We are further advised, under date of August 5th, that the "50% restriction" applies equally "to natural gas and all other forms of fuel."

Can to the Limit.—How much fruit and how many vegetables can be prepared without overstepping the regulations governing the use of sugar or the conservation of food? In response to a question, John R. Munn, chief of the Canned Goods Division, United States Food Administration, said: "The Food Administration urges the canning of foodstuffs in the home to the limit of home consumption. If it is desirable to put up more than one year's supply, the Food Administration can have no objection, but cautions the canner that there may be spoilage and loss if the preserved foods have to be held over a long period. It is not economical to have the idea of disposing of any surplus through commercial channels, but the Food Administration does urge in the season of production the preserving of as much food as possible for home consumption."

War Gardens Work for the Fourth Loan

PATRICIA KING

THE man-of-the-hour, to "Uncle Sam's" way of thinking, is the war gardener who utilizes nature's gifts of soil, sunshine and rain to produce food and money to help win the war. His patriotism is measured by doing, not talking, for he renders a double service to America in this critical period of the war. The war gardener solves the problem of food supply by putting his shoulder to the plow; he saves money for the Liberty Loan by cutting down the family expense account and investing money saved in Government bonds.

Every peck of potatoes, every head of cabbage or lettuce; every bunch of beets, asparagus, or onions; every quart of peas or beans, raised in the war garden in the backyard or in the vacant lot across the way means that much food added to the season's production. It means a conservation of less perishable food-stuffs—wheat, meat and fats saved, by substitution of these vegetables—for shipment to our Allies and our armies abroad. It means a large supply of garden truck in the markets, which, in turn, means lower prices.

Money raised by the Liberty Loan would be useless to keep our armies nourished if the food supply in America did not meet demands. War, after all, is a matter of brawn and muscle. The strength of our men depends, ultimately, not upon how much money is in the Treasury, but upon how much food is in the country's larder. America must have money to purchase food, clothing and munitions, if the war is to be won, but before food can be bought, it must be raised. The war gardener must fill the gap left in the nation's farming forces by the men who have gone into active service.

Every home in America should have its war garden and draw upon it for supplies. A ten-cent investment in vegetable seeds, take beans for instance, should net a return of from four to six times that amount in money. The amateur gardener who spends his evenings in the fresh air planting, weeding or hilling up, instead of staying in-doors, reading or playing pool, should be able to raise four or five "messes" of beans from this one planting, worth sixty or seventy cents. Making a small allowance for insect-powder or fertilizer, there is still thirty or forty cents realized on the ten-cent investment for the Liberty Loan fund. The children of the family could by turning their attention to gardening add to this patriotic fund.

The Fourth Liberty Loan must pay for maintenance of General Pershing's million men in France and must mobilize, equip and transport a new army to Europe. Twice as much money as called for in previous loans, must be saved to meet these increased demands upon the nation's resources. The war garden service is more vital than ever before. Now is the time for the amateur-gardener to turn his plot of ground to advantage for the Liberty Loan. He must do his share of this war work, and interest his neighbors in the necessary service of relieving the demand upon the nation's food supplies and of saving money for bond subscriptions. Uncle Sam counts upon his growing army of home-farmers for the heads of cabbage and the pecks of potatoes that are conserving his army rations. Every effort counts in this great business of war. The nation needs every man's service as well as his money.

The Garden Movies, No. 9.

Conservation by timely steps to outwit early frost—Laying the foundation for next year's campaign.

EVEN as the end of the season approaches there are plenty of things on the active list. The beginner is very likely to feel that a period of rest has come, but not so! Now is the time to nurse the season's maturing work and also to lay the foundation for next year's war garden. For example: all kinds of weeds, especially the annuals are seeding, and fertile fields may be impoverished by neglecting to destroy the weed hedges which are usually allowed to grow unmolested around the sides of the garden. Seeding process must be stopped by keeping the sides of the garden clean. Weeds can be more easily eliminated now than at any other season.

It is much easier to fall in line in a parade than it is to make the necessary preparations for one; that is why most gardeners are following in the footsteps of others, but the successful gardener is the one who looks ahead, thinks ahead, and acts ahead. Start now to gather all the burlap, wrapping paper and other materials which will be useful to protect vegetables and flowers from early frosts. Usually we have a killing frost followed by several weeks of very fine weather. If protected from the first frost gardens keep growing for some time after.

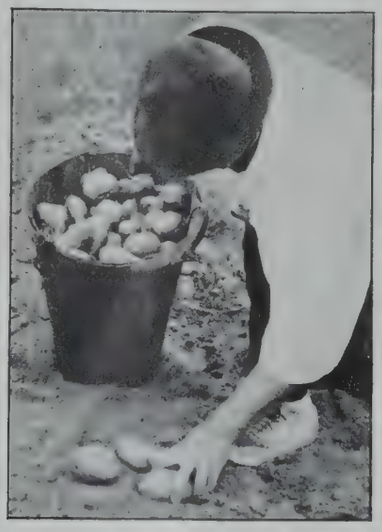
All rubbish, decayed vegetable tops and weeds that have been destroyed, should be cleaned up and burned as such materials give harbor to hosts of insects to bother next year.

All cleared ground where crops have been growing should be sown with cover crops. New gardens now being made ready for next season should be sown with these soil builders.

Generally speaking, for the average soil a mixture for fall sowing is made by using equal parts of rye and red clover. The effect of cover crops on the soil when plowed under is identical with an application of well rotted manure. In young orchards these crops protect the roots during winter and should be sown if for no other reason than to prevent winter-killing.

There is no gain in allowing potatoes to remain in the ground after the vines have died down and the potatoes are ripe. Use a fork when digging, working it in from the side of the hill, rather than from the centre. Let the tubers remain exposed to dry for several hours before storing. Size of tuber alone is the gage for the time of digging sweet potatoes.

Spray cold water on frosted plants to save them



Expose potatoes to air before storing

Tie up cauliflower heads to keep frost away

Prolong the tomato season by wrapping sound unripe fruit

Any kind of cover over beans will ward off the first sharp frost

Cover individual tender plants by putting a bag over

Old corn stalks make good protection for low growing crops

This protective bridge will appreciably prolong the crops

THE MONTH'S REMINDER, SEPTEMBER, 1918

The purpose of the Reminder is to call to your attention the things which should be thought about or done during the next few weeks. For full details as to how to do the different things suggested, see the current or back issues of THE GARDEN MAGAZINE. *An index of contents is prepared for each completed volume, and is sent gratis on request. Prepare now for next year's war garden.*

IN SEPTEMBER, we expect to pay more attention to getting things out of the ground than to putting things into it, but the wise gardener is beginning, not only to plan, but to actually *start the work on his next year's garden,* before this year's crops are out of the ground! Much of next spring's work can be done *from now on* this fall, and everything that is done between now and the time snow flies will be doubly effective.

In the Vegetable Garden

GET something growing! Rule number one for the fall garden work is, to sow something that will grow through the winter, on every square foot of soil not occupied, until hard freezing weather. There is no need to wait until the crops come off. As soon as September rains make the ground "workable" loosen up the soil between the rows, and rake in rye, or rye and vetch. Sow rye early, especially wherever the soil is likely to be washed out in late fall rains.

Get after onions early. Don't wait until tops are completely dried up before pulling them. Remove from the ground as soon as tops fall down and begin to shrivel and bulbs come out of the ground readily. Dry in an open, airy shed.

Prepare for frost. Almost invariably the first cold snap which will kill the tender things is followed by two or three weeks of weather when conditions for late growth are ideal. A load of marsh or salt hay, which you will want for winter mulching later on anyway, can be obtained now and will be the means of saving you its cost in vegetables saved from the early frost. Have it on hand near the garden where you can spread it along and over rows of lettuce or beans when the first frost threatens. A few days before danger of frost, go over vine crops and cut out the ends, of the plants and laterals which are not needed to support the fruits which have a chance of reaching full maturity.

Keep the celery growing upright! One growing celery for the first time is likely to make the mistake of letting the plants take their natural form of growth. Keep the growing plant hilled up carefully to hold the stalks together. The extra early plants should be ready for blanching this month. If you find them difficult to handle, tie each bunch up fairly tightly with coarse twine before drawing the soil up to it. The work of hilling, fall blanching, should be done while the soil is fairly moist, *but not while the plants are wet.* The quickest and easiest way of blanching is to use a modern blanching outfit consisting of a metal tube to clasp about the plant and a paper jacket to hold it in shape while blanching.

Keep the late crops going. Don't forget that, even though weeds may not bother as much now as they did early in the spring, cultivation is just as important! Keep the wheel-hoe and rake going, and otherwise care for the late planted things as carefully as you did those planted in April and May.

Don't gather root crops too early. The root crops such as beets, carrots, parsnips, and turnips will not be injured by the first early frost, but will make good growth for some weeks afterward. They need not be taken out until there is danger of their being frozen fast. If they are taken out too early they are likely to wilt or spoil when put into storage.

In the Flower Garden

ARE you ready for the show? Nothing has done so much to stimulate interest in flowers in the last few years as the reawakened interest in local flower shows. Has your town or community joined this movement yet? If not, get busy and organize one yourself. If it has, join and take an active part. Don't be afraid to exhibit as many beginners are, unless they feel sure of being able to capture half the first prizes. Do it "to help along"—but be determined to take any prizes you can. Don't wait until the very last minute to select what you want to take. Begin to pick out, select, and nurse now.

Protection from early frost. Have a supply of bags, old sheets, or anything that will do for covering your choicest plants at night when frost threatens. Even the most tender flowers such as Tuberous Begonias, and so forth, will continue to bloom for several weeks *after the first frost,* if they can be saved.

Gather the mulch. Begin at once to get together the materials which you will need for mulching later on—leaves, hay, light manure, and so forth. Keep in a dry place where they are available as wanted.

Why wait till next year? If you want to have a reputation among your neighbors for the flowers you grow—*your flower beds must be well drained!* You cannot expect the same results from simply planting out in any strip of ground merely spaded up, as from planting in a carefully made bed. Select a good position, and, as you find time to spare during the next few weeks, dig it out to a depth of eighteen to twenty-four inches, put a few inches of cinders or gravel in the bottom, cover with broken sod, and refill with good garden loam mixed with barnyard manure—not just light, dry horse manure. Next year put your choicest flowers in this bed, and wait for results.

Greenhouse and Frames

GET soil in place now; for all under glass crops. Time to settle and ripen a bit is needed before you put in the vegetables or flowers which may be wanted for fall or winter. A generous application of bone meal and wood ashes, raked in when soil is put in, will strengthen and sweeten it, and leave everything in readiness for rapid plant growth.

And while you are getting soil, be sure to provide plenty for next spring's needs. Good soil for flats and pots is one of the biggest factors in the success of the spring operations. Mix garden loam, sods, and manure in a compact pile now; give a good soaking, occasionally, to keep moist; and fork over two or three times before freezing weather.

Make sowing of lettuce for first under glass crop at once—if you haven't done so already. May King, Wayahead, Big Boston, Mignonette, and Grand Rapids are all excellent sorts for this purpose—the last is a loose leaf variety.

Be careful with crops put under glass this month. A few hours' bright sun may result in excessive wilting, resulting in a bad check to growth, even if it should not prove fatal. Plants taken from the open to be set under glass, where conditions are quite different, need to be trimmed back carefully, and shaded for several days. Of course, all the air possible should be given for several weeks yet. Leave the sash off frames, except to protect from hard beating rains.

Heat a Frame from Your Cellar

IF YOU haven't any greenhouse, you can have an inexpensive substitute in the form of a deep frame, placed against the house, where you can run a hot-water or steam pipe through it from the heater in the cellar. Often the frame can be so arranged as to be accessible from the cellar, so that it can be got at in stormy weather without lifting off the sash. Such an arrangement, with three or four double glass sash will give winter vegetables, and such low-growing plants as bulbs, Stocks, Violets, in quite a generous supply.

Plants for the House

NINETEEN persons out of twenty will admit that they get more pleasure, plant for plant, out of their house plants than any others. And yet how infrequently one sees a good collection of house plants. The reason is that they are generally given no thought until after snow falls and the last of the out-door blooms has succumbed to the advance guards of the winter drive.

Order now plants for winter! There are some glorious new Ferns. And there are some splendid Geraniums (costing no more than the old varieties). Get small plants now, pot them up in good soil, keep the buds pinched off for a few weeks, and have a winter garden that you can be proud of.

Start now a packet of Clarkia—one of the least known of the best flowering plants. Pot up the seedlings, which are grown readily, in two-inch pots, and shift later to fours. You will be glad to make the acquaintance of one of the cheeriest, freest flowering little plants you have ever met.

Take up from the garden some of the favorites to bloom in the house this winter. Don't wait until the last minute, and then try to save the whole plant but remove all blooms, and cut back quite severely. Then cut half way round the roots, after a week or so cut around the rest of the way, water thoroughly, and when water has soaked away, take up and pot. Keep in the shade and well watered for a week or so. New growth will start, and in a few weeks you will have your plant in full bloom, ready to keep on supplying its good cheer through the winter, and give you cuttings in the spring that will perpetuate the identical color you have selected, if it happens to be something that would not "come true" from seed.

Examine any plants in pots you may have been carrying over the summer, for use in the house again this winter, to see that they are not "pot bound." If the roots have become a tough fibrous mat around the inside of the pot, the plant needs repotting. Either loosen the ball up with the fingers and change to a larger pot; or if already in a large-sized pot, soak off most of the old soil in a pail of water, and repot in fresh soil in the same pot. The longer in advance of taking the plants into the house this can be done, the better.

Spend a few hours and a couple of dollars in fixing up a suitable place for your winter window garden. Don't be content with sticking a pot up on a window sill, where it is in danger of getting knocked off, or frost nipped through the glass. Build a suitable, strong, wide shelf, with an edge around it, to hold moss or pebbles; and put up brackets for the things of a trailing nature. If a window box is used, it should be given ample drainage.

Order Bulbs and Shrubs

DON'T wait another day to get in your orders for bulbs and shrubs for fall planting. Last year, on account of the war, showed a falling off in the planting of most ornamentals. Now is your chance to get extra large and fine stock. Take advantage of it! But *order now,* even if you don't want delivery till next month; transportation is improved but the nurseries are very short handed. Those who have tried "made in America" bulbs have been very pleased with the results. California is now growing bulbs "to beat the Dutch", or at all events to help out the market.

THE PATRIOTIC GARDEN

FOOD F-O-B THE KITCHEN DOOR

He also Fights who helps a Fighter Fight

EAT·FRUIT·AND·SAVE·SUGAR

EAT·NUTS·AND·SAVE·FAT

Gardening for Re-Educating Disabled Soldiers

GARRARD HARRIS Federal Board of Vocational Training

Curative Value of the Work Amply Demonstrated in European Hospitals and Reconstruction Centres—Plans Comprehensive Developing for Over Here

CERTAINLY, gardening in all its various affiliated branches is coming more prominently forward for emphasis and public attention. The result is bound to be a better appreciation on the part of the public of the great advantage a knowledge and practice of these things hold for the average man or woman. Greatly stimulated interest in gardening, from economic and health standpoints will be the logical outcome.

The United States Government has committed itself to the duty of reëducating vocationally, all men of the army and navy who may become so disabled that they cannot return to their former method of making a living. This work has been placed by Congress and the President in the hands of the Federal Board for Vocational Education. The law providing for this vocational rehabilitation was only signed by the President June 27, 1918, but the Federal Board had anticipated it somewhat, and was ready to at once take on the work and proceed with it; and it is now actually under way.

According to the figures from all belligerents, based upon more than three years of warfare under all the varying conditions, there will be an average of ten thousand men for every million enlisted who will annually be subjects for vocational reëducation; or something like 25,000 men each year on the present basis of enlistments. This does not include all men who are seriously wounded, by any means. The majority of them are able to return to their former vocations, although so disabled as not to be available for further military service. It is only the man who is rendered incapable of resuming the work he was engaged in prior to his entering the army who is the subject of free reëducation, pay while in training, and family allowances continued during the same period. The figures of the men to be retrained hold up to the average of ten thousand for each million men. If we have an enlistment of five million, it will mean fifty thousand annually to be vocationally reeducated, and garden work is seen in a very favorable light, not alone because of itself but because of the remarkable therapeutic value in rebuilding the mental side. Experience of other countries has shown that of all the matters taught the students of gardening and field work have made the most rapid recoveries.

Figures show again that, contrary to the general idea, the dismembered man, or the man who has lost a limb, is in the vast minority among the war disabled. Out of the ten thousand men per million who are subjects for retraining—that is, so badly injured that they needs must be provided with a new means of making a livelihood compatable with their remaining capabilities, only five hundred will be "dismembered" cases! Of this number, approximately three hundred will have lost a leg or legs, and two hundred an arm or arms. The percentage of blind is surprisingly small. Out of 41,000 Canadian soldiers invalided home, there were less than forty cases of blindness.

Class in market gardening at the Guelph, Ontario, Agricultural College, where soldiers' re-education work is already in operation

In 341,025 pension cases coming before the British Ministry up to May 1st, 1918, 11.60 per cent.—the largest of all percentages—were of cases of chest complaints and tuberculosis. There was 10.3 per cent. of heart disease, 2.0 of deafness, and 6.0 of shell-shock and nervous diseases, a total of 30.63 per cent. of the total of injuries. In all of these cases, gardening, flower raising, bulb growing, and like outdoor occupations are peculiarly applicable. It will be noted that amputation cases are not included in this list. It is thought that other and more highly specialized occupations would probably be better adapted to the majority of the amputation cases: but for the men with such injuries as require the maximum of fresh air, moderate exercise, quiet, and yet something of absorbing interest, gardening in its broad sense is the happiest solution of their physical and occupational limitations.

So, in the United States there will not be a phase of it that will not be available for these injured men to study and be trained for. It is thought that many of the former farmers and agricultural workers without special knowledge, will be easily trained into becoming specialists in horticulture and its various ramifications.

The value of gardening as a curative means is attested by Dr. Bergonié of the French reëducational forces, who, in reporting on the results achieved at the hospital at Grand Lebrun, near Bordeaux, a physiotherapy centre, in contrast with the work at Martillac, where the men follow prescribed exercises in the fields and gardens, says:

"We were able to prove how far the agricultural remedy was superior in percentage of cures, as well as in rapidity and thoroughness, to mechanotherapy, and even to all physiotherapy carried on indoors at the Grand Lebrun hospital." The work is safe, the report goes on to say: there is a steady improvement, there are no backsets or accidents, and 80 per cent. of the men after agricultural treatment are cured and able to return to the service. Only 10 per cent. show an improvement insufficient to return (these are the reëducation cases for permanent vocation) and from 3 to 5 per cent. remaining in an unchanged condition.

As a curative media, gardening has its place of high importance fixed and defined. As a calling for those who, by reason of their disabilities, are compelled to change the form of their civil occupation, it presents advantages held by nothing else. These facts are recognized: and gardening, in its various avenues into spec-

This panoramic view of the military reconstruction farm at Guelph, will give some idea of the scale of operations in Canada

ialized agriculture is to occupy a prominent place in reëducational curricula.

There is, undoubtedly, something deep down in most of us which impels a love of the soil and of growing things. It is largely undeveloped in city folk—dormant, so to speak, as is the germ in the seed, but needing only proper influences and conditions to waken it into life. The genuineness, the worth-while-ness, as it were; the actual companionship and peace gardening affords those who love it, make it peculiarly an occupation of exceptional merit for those whose foundations have been sorely shaken by the horrors of the devil's nightmare in France. The grateful turning to creation, instead of destruction, at once grips and fascinates most natures to whom the processes are shown.

The experience of our troops and workers in France, observing that land of tiny farms and intensively cultivated patches, is undoubtedly going to have its influence upon thousands of our men whose interest in growing things has not heretofore been awakened. City men, billeted in villages in France have been laboring voluntarily in the gardens and fields in order to help the old people whose sons are on the battle line. These men have been impressed with the wonderful amount of foodstuffs that can be produced upon an infinitesimal acreage. It is going to result, after the war, in a mighty exodus to the suburbs of American cities, the outskirts of towns and to the semirural life along our interurban and railroad lines.

Especially is this life going to appeal to the injured and disabled man. If he can return to his former occupation, he will also have his disability compensation, and the knowledge of how to help out on expenses by a small piece of land, effectively used. There will be many of this class of men who with their disability compensation to lean upon, are not going to labor as hard as formerly, but will substitute their knowledge of gardening and growing things in place of unremitting activity in some other line.

The training classes set up by the Federal Board for Vocational Education will be free. The man who is wounded but not sufficiently disabled to keep him from his former occupation, may take the course if he wishes to, except that he is not given his pay and family allowances while taking it. If he chooses after discharge to take it and maintain himself, or depend upon his disability compensation, he is welcome to enter the classes. Many of them are going to take up the study of gardening, impelled by the object lessons they have seen in France. These will persuade the men of the worth of intensive horticulture, and will also make easy the task of the vocational advisers in inducing them to take up gardening as a course of instruction and future livelihood.

The Government has not yet formulated its policy of getting the disabled soldier on to the land, as has Canada, Australia, New Zealand, and other countries, but there is manifest at Washington a strong sentiment in favor of accomplishing this object. The public domain in the West still affords some land available for homestead, but as against this type of heavy farming may be urged the limitations of the disabled man, so that there is not much likelihood of a materialization.

But, as an alternative, there has been suggested that an amendment be passed to the Federal Farm Loan Bank Act, applicable to all disabled soldiers enabling them to obtain loans up to nearly the full value of a piece of land, advantageously located with respect to markets: this loan to be used as the bulk of the purchase price: and then loaning an additional sum on the security of the soldier's disability allowance, for the purpose of completing the purchase price and furnishing working capital to begin on. It is very likely that legislation along these lines will be proposed at the next session of Congress, and quite probable that something of the sort along these general ideas will be passed.

Dried Vegetables as a War Garden Economy

CHARLES LATHROP PACK President, National War Garden Commission

"HANDS Across the Sea," never before meant quite what it means to-day and as President Wilson said in his message to the French people on their National holiday "the ocean seems very narrow." So to-day the hand of the United States is held out to the nations of the world through the darkness of war in countless ways. Our men go gladly. The Red Cross works patiently and other humanitarian agencies unite to lighten the burden, but back of them all must be food. It is for food particularly that the rest of the world is looking longingly and trustfully to America.

Much that has been done in the United States, in the direction of increasing the world's food supply, is furnishing an example to other nations. They are studying the methods which are being applied here successfully; they see the universality of the response to the nation's appeal to produce and to save food, and it inspires them to do likewise and encourages them to keep on in the good fight which they have undertaken to rid the world of the oppressor.

There has been nothing that this country has started in the food production line which has perhaps attracted more world-wide notice and example than war gardening—a distinctly war-born undertaking. The idea of getting everybody in the nation aroused to the importance of putting to work every bit of vacant land in the country—back yards, commons, parks, open spaces around mills and factories, and all other available space—spread over the United States like wildfire once the people were made to realize what could be accomplished in this way. Other nations, some of which had attempted something in this direction, have come to the United States to learn of the manner in which such national interest was stirred up in this work here.

War gardening in the United States has assumed colossal proportions. It has produced almost immeasurable quantities of food for summer use; and in addition is leading to a stocking up of pantry shelves in almost every home with a vast amount of canned and dried vegetables and fruits for winter use.

The drying of foods has not yet assumed the proportion it deserves. It is not a new art, having been practised to a certain extent from the days of the ancients and everyone is delightfully familiar with grandmother's famous dried apple pies. But on a large scale dehydration is still in its infancy. It is taking hold this year, however; and many tons of garden products will be conserved by this process. The value and the importance of this method can hardly be overemphasized. [See article on page 54 for practical directions; also watch for October GARDEN MAGAZINE.—ED.]

Not long ago some dried products which had been saved since the time of the Boer War were opened by the British War Office and found to be *just as good as the day they were put up!* They had been shipped from Canada for the use of the British army in South Africa, but had not been used because of the sudden termination of that campaign. And so they were sent over to France for the pressed British Expeditionary Forces there. The British and French governments have purchased more than 50,000,000 pounds of dried foods from Canada since the

outbreak of the present war. The American Army is following suit.

Perhaps there is no man living to-day who can speak with more authority on conditions in South Africa than John Hays Hammond, the famous international mining engineer, who was a big factor in the development of that rich territory. Here is what Mr. Hammond said in discussing the subject:

The supplies of dried vegetables which were shipped from Canada to South Africa duirng the Boer War were found to be just as palatable, just as nutritious, as any of the other rations. I doubt if a single one of the men could have told the difference between this part of their mess and the other edibles that were furnished them. Certainly this is borne out by what a close friend of mine, Dr. Charles L. Lindley, of Lakewood, N. J., himself born in South Africa and an army surgeon during Lord Roberts's campaign there, recently told me. His experience with dried vegetables confirms every claim that can be made for them as a valuable part of a soldier's rations.

The American Army, I have been informed, has seen the value of using dried foods because of the cargo space that can be saved and the greater ease in handling large quantities; and the subsistence division of the army quartermaster's department already has purchased several thousand tons of dehydrated products for use of our boys overseas; and has made plans for the shipment of possibly as much as 20,000,000 pounds of such supplies.

As a member of the National War Garden Commission, Mr. Hammond is especially interested in the problem of dried foods and in the work which the Commission is doing to spread the gospel among the five million war gardeners of the United States, calling their attention to the valuable patriotic service they can render by conserving as much as possible of their surplus vegetables in this way. It commends itself for many reasons. It results not only in the saving of food which otherwise might go to waste; but it is an inexpensive way of filling up the pantry shelves. Dried products take up little space; almost any sort of a receptacle from a tin can to milady's hat box can be used for storing the products, and if they are to be shipped they are light in weight, so that quite a lot could be sent for a few cents to a needy friend, hospital, or other place; and they would not tend to overcrowd already burdened transportation facilities.

The fine example which hundreds of communities throughout the country are setting this year in establishing dehydration plants and in urging the home gardeners to dry a lot of their vegetables is worthy of highest commendation.

said Mr. Hammond, in discussing the subject further. "They are following out one of the slogans which the National War Garden Commission has sounded: 'Fight the Foe with Dreadnaught and Drier.' Food is just as necessary as battleships and bayonets; and everything that can be done to facilitate the saving of food and to increase the supply must be encouraged to the utmost of our might. Here is where drying can render a most valuable service.

"While the ancient knew something of drying just as they knew something of dreadnaughts—for their three-banked galleys rowed by hundreds of slaves chained to their seat might be called such—their knowledge as compared with present-day information, was about as primitive as the bolo of a South Sea Islander when placed alongside a rapid-fire gun. The drying apparatus is the machine gun with which hundreds and thousands of housewives all over the country are pouring out the ammunition which will rake down the foe. He cannot stand up under dried shell beans any more than he can advance under the withering fire of shells which our boys are handing out to him. So we say: Go to it, you millions of war gardeners in America. Raise all the food you can and dry as much as possible. Let Old Sol help you in this work, if you have no other apparatus; and thus will America take her legitimate and proper 'place in the sun.'"

The subject of dehydration has been given most careful study by scientists; and when the work is done on a commercial scale, great care and exactness is exercised so that the food will keep almost indefinitely and can undergo all sorts of changes in climate and temperature without deteriorating or losing any of its flavor and food value. Of course, when the work is done for a household where it is not necessary to preserve the product for any great length of time and where it will not be subject to any violent changes of weather, no such precision of preparation is required.

In its call for the production of "Food F. O. B. the Kitchen Door," the National War Garden Commission has emphasized the vast saving in transportation which is effected by having a supply of vegetables grown where they will not require much handling in getting from the garden to the consumer. In this way thousands of freight cars have been saved for other essential war service.

The same argument is one of the strongest that can be advanced in favor of the drying of vegetables and fruits. One hundred bushels of potatoes, in their natural state, to give one instance, weigh six thousand pounds. Properly dried this is reduced to something like eight hundred pounds, with proportionate shrinkage in volume. In all vegetables the weight is reduced by drying to one sixth or less of the original; and the bulk to one third or less. Mr. Lou D. Sweet, president of the Potato Association of America, popularly referred to as the "Potato King," and whom Mr. Hoover made head of the dehydration section of the United States Food Administration says in a recent communication to the National War Garden Commission:

Dehydration has come to stay in this country and while it may still be regarded in the experimental stage, those who are most familiar with the problem of food production and conservation are firm in the opinion that we are seeing only the beginning of what is sure to expand into an enormous and most important industry. Every encouragement, therefore, should be given to home drying, in order that the people may become familiar with the excellence of the products which may be prepared by this method; and to save the vast quantities of excellent food which now go to waste for lack of adequate means of conservation.

Coming from such a source this subject is surely deserving of the most serious consideration and study by communities, individuals and all who are interested in the vital problem of helping to conserve and increase our food supplies. It will be a long time, in most cases, years after the coming peace before the nations of the world, many of their leaders almost absolutely depleted, are restored to anything like normal food supply condition.

The home war garden idea has circled the globe. The National War Garden Commission has received numerous requests from foreign countries for copies of its gardening and canning and drying booklets, posters and other literature and for information as to the best methods to pursue in getting this movement started. This coöperation has been gladly and freely given. From France, England and Canada to the far-away islands of the South Pacific; from China, India, Japan; from Cuba and South America, these requests have come.

Producing Food from Wood and Oil W. C. McCOLLOM

Keeping the Greenhouse in Profitable Food Crops Without Undue Fuel Use

TO AVOID any miscomprehension, it is best to state at the outset that the Fuel Administration is not in the least in sympathy with the extensive operation of private greenhouses. The Fuel Administration has ruled that 50 per cent. of the last three years' average coal supply could be used for greenhouses this winter. When the coal consumed did not exceed forty tons, commercial plants will be allowed their full one hundred per cent. (See page 6 of August issue). This is to protect the small grower.

Greenhouses on private estates are given the same ruling, but the local fuel administrators are advised to discourage as much as possible the operation of private plants. This was the result of what has been the prevailing impression regarding the uses of the average private greenhouse—a mere toy where Mrs. So-and-So spent time and money playing with a few favorite Orchids, or trying to grow some odd freak that meant more expenditure than value.

Mushrooms are a profitable side crop for the partially heated greenhouses, using otherwise lost space

But the greenhouse is making a new appeal, and the perfume of Orchids makes way for the substantial odor of onions, cauliflower and other vegetables.

IT MUST be definitely understood that any argument here presented is based on hot-water heating, which is the only practical heating method for a small greenhouse. If steam is used, anything other than anthracite coal is out of the question, and the problem is a big one. Every effort must be made to conserve coal by using other sources of heat during mild weather, even in midwinter. As a matter of fact, figuring on last winter's condition (which was extreme) it should be easily possible to operate the greenhouse to full efficiency on but twenty-five per cent. of the coal used at that time, based on a normal winter season and getting all possible out of

the other means of heating as outlined in last month's GARDEN MAGAZINE.

Vegetables in the greenhouse require very little heat, and in fact ninety per cent. of the trouble with these crops under glass can be attributed to over-heating. A temperature of 50° at night is ample for all vegetables, with the exception of tomatoes, cucumbers, bush limas, eggplant and peppers, which require 60°. With proper management it will only be necessary to heat the greenhouse for four months for the growing of these crops. This is not always steady and will sometimes be broken by mild spells at which time it will be possible to use the other heating mediums, thus saving coal. In mild spells it will suffice to build a good wood fire in the afternoon, getting the water hot *even to the return pipes*. In most cases this will radiate enough heat to maintain the temperature throughout the night. Where kerosene is used the heaters are put in operation in the late afternoon, just leaving a "chink" open for ventilation.

Comparatively few logs of wood are necessary to raise the temperature of the water to a considerable degree, and when the body of water once becomes heated to the proper degree and is circulating freely through the houses, it takes considerable time for it to cool.

In extreme cases where wood is quite plentiful, it would not be beyond the point of reasoning to operate a greenhouse entirely with wood fuel. This is no serious hardship; simply more frequent and closer application.

France has already demonstrated the adaptability of even the maimed soldier for practical garden work

THERE are certain disadvantages connected with the use of oil heaters. They consume a large amount of the oxygen. They are, to a certain extent, a very poor substitute for our present methods of heating greenhouses, but it is easily possible to secure good results by using these burners.

A No. 3 Perfection Smokeless Oil Heater (costing about $6.00), or one similar in size, will consume practically one gallon of kerosene in twelve hours. Four of these heaters will maintain a growing temperature in a greenhouse eighteen by twenty-five feet. The fuel consumed per night would cost about sixty cents, based on zero temperature, which of course, is by no means continuous. We may assume that from ten to twelve dollars per month would run a greenhouse eighteen by twenty-five feet, with a proportionate reduction if more than one unit is heated.

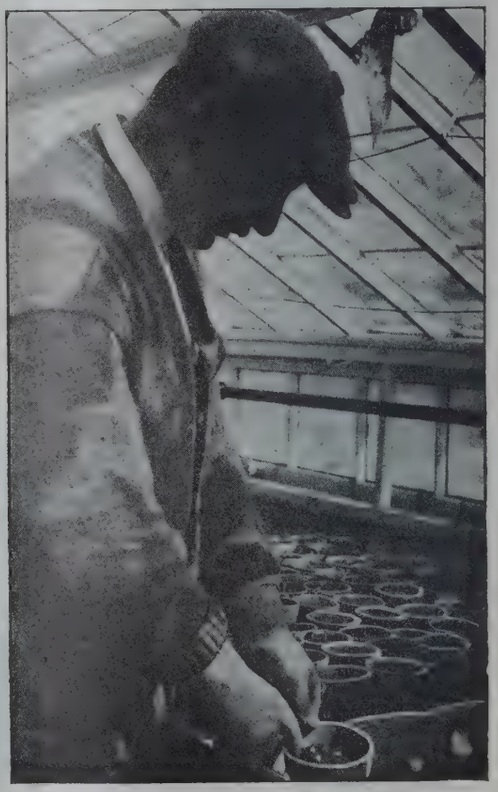
It will be necessary to thoroughly clean the heaters each day to be certain that they will not smoke, as anything of this kind is injurious to the plants. The heaters are seldom used during the day as the sun furnishes enough heat to supply the greenhouses. It is also a good plan to ventilate freely during the day, so that the air is kept sweet by constant changing. If this is not done the growing condition will be unfavorable because of the consumption of oxygen.

LAST month it was advised to sow bush limas, peppers, eggplant, bush beans, tomatoes, and cucumbers. The bush limas to be sown in rows, crosswise of the bench where they are to remain permanently through the winter. Bush beans should be handled in nearly the same manner, except that as they are "croppers" room must be left for subsequent sowings. The eggplants, peppers, tomatoes, and cucumbers, which should have been started in tins or boxes, should now be put in small pots and shaded for several days after which admit full sunlight. When they are thoroughly rooted in the small pots, they can be transplanted into larger ones from which, some time the latter part of this month, they may be benched. It sometimes makes better arrangements to keep the eggplants and peppers in pots about nine or ten inches in size, and they can be shifted from one place to another. Tomatoes should be planted in hills composed of one pailful of good wholesome growing soil. They should be immediately supported by light stakes.

THE cool vegetables, such as cauliflower, beets, carrots, parsley, peas, lettuce, onions, cress, radishes, spinach (both types), Swiss chard, and turnips (night temperature of 50°) should be started at this time. These vegetables have been grown successfully in manure heated hotbeds, simply by protecting them with leaves and litter during severe weather. Carrots, beets, radishes, turnips, Swiss chard, parsley, and New Zealand spinach, are in this group. The last three mentioned can be moved from the open garden by taking care in transplanting. The other vegetables are to be sown in seed pans, and transplanted when large enough to handle into well prepared boxes and set about two inches apart. When about three or four inches high they may be transplanted into benches where they are to finish. Sow for succession at intervals of about three weeks.

Some of the space beneath the benches should be devoted to mushrooms. The droppings should be gathered, care being exercised that the material does not burn. This is best accomplished by constant turning. When the heat has started to recede and reached ninety degrees, the bed can be made ready. About one foot of the droppings are placed under the benches and firmed thoroughly with a brick. They should be observed closely for several days and if the heat does not rise above one hundred and ten degrees, it will not be necessary to disturb it.

Young cauliflower plants are transplanted into the benches and give profitable returns for the space



Cucumbers do not transplant well so they are sown in pots where they are not disturbed

How to Judge Vegetables W. N. CRAIG

[EDITOR'S NOTE: *Last year we had many complaints from enthusiastic new gardeners who did not feel satisfied with the decisions at the local club or war garden exhibitions of the season's produce. The conditions were due to various causes. Sometimes the exhibitors themselves did not know the points of merit—and were in any event at least a little prejudiced in their own favor—sometimes the fault rested unquestionably in the similar ignorance of the judges. So we asked Mr. Craig to write this article. He is an experienced gardener of well known ability, having a large estate under his care. He is also quite familiar with the exhibition hall as contestant; and his services are often called for as a judge in professional contests. Hence this presentation should be of service to the members of the various clubs conducting contests at this time.*]

ONE blessing that the great European war has brought in its train is the fact that thousands of men, women, boys, and girls have been brought into intimate contact with the brown earth. There are many more "war gardens" than a year ago, and the growers are more careful and critical. In practically every village, town, and city there will be exhibitions of vegetables this fall, to say nothing of the numerous school exhibits and millions of people will in the aggregate view the products. Last year at similar gatherings there was injustice often done in the final judgments and awards because of an ignorance of standard of merit. Perhaps these remarks may be of timely help this year.

The exhibitor must bear in mind that specimens put on display for competition should be as well grown as possible, clean and correctly named. Any exhibit in a competition should also contain the *exact number of specimens called for in the schedule.* Some organizations are still offering premiums for the "best display" of tomatoes, beets, potatoes, and sundry other vegetables. This should be discontinued—such classes always put difficulties on all concerned and invariably cause lots of bickerings.

The method of judging is wonderfully simplified when all the exhibits in each class are grouped together. Even in some of our agricultural fairs this is not done. Judges should insist that the committees in charge of exhibits so arrange the articles that the classes can be handled with a minimum of trouble.

While competent judges can usually make their awards without having recourse to any system of scoring, yet where competition is very close this is sometimes necessary and particularly so in the case of "collections."

A general utility collection of everyday vegetables of good quality

Arrangement counts in this display of produce grown at the Santa Cruz Light Station War Garden

HERE ARE TWO "COLLECTIONS" OR "DISPLAYS." WHICH WINS? TRY POINTING BY THE SCALES ON PAGE 64 AND SEE WHERE YOU ARRIVE

With new exhibitors the greatest trouble always is in wanting to show their largest specimens, irrespective of form, and in failure to stage specimens of uniform size. Points for judges to consider in making awards are: 1, size; 2, form; 3, smoothness (in the case of all root crops); 4, varietal character (whether true to type or not); 5, uniformity; 6, general condition (fresh appearance, freedom from coarseness, good color, etc.); 7, correct labeling. In order to show how this would work I will discuss in detail some of the more important vegetables which are sure to be shown in the greatest numbers.

The leader amongst these is the *potato*, a vegetable which needs very careful judging. It is necessary, as a rule, to turn over all potatoes and where competition is at all close the proper method is not to attempt to pick out the winners offhand but to gradually eliminate all but a few dishes; and then proceed to carefully "point" each factor in each exhibit, but this procedure should also be applied to all vegetable judging.

THOUGH individual classes are occasionally difficult to judge they are simplicity itself as compared with "collections." With the latter it is more easy to make a decision when the schedule calls for a *certain definite number* of *varieties* and specifies the *number of specimens of each* to be shown, but "where the largest and best collection," "collection of not less than 18 varieties," "finest general display" and other vaguely worded phrases are used decisions are often more difficult to make and cannot well be more than personal preferences. It is always best to use a score card with collections; snap judgments from hasty glances will often convince an exact judge where awards should go but amateur judges would do well to score all they judge.

In this connection it is well to remember that an exhibitor may put up a fine imposing collection of low-scoring vegetables and another one a smaller sized collection of high class heavy-scoring sorts. Such vegetables as cauliflowers, onions, peas, potatoes, celery, asparagus, and brussels sprouts should be allowed the maximum of 100 points each if in perfect condition; tomatoes, egg plants, carrots, sweet corn, leeks, parsnips, and beets—80 each; endive, lettuce, green peppers, cucumbers, salsify, and turnips—60 each; string beans, shell beans, cabbage, red peppers, and celeriac—50 each; Swiss chard, horse radish, kohl rabi and squash—40 each; with rhubarb, spinach, radishes, okra, and Jerusalem artichokes only 30 points each.

Where tasteful arrangement is called for (too often ignored in schedules), 100 points should be allowed as a maximum. Not infrequently arrangement turns the scale where the collections are on a par for quality.

A competitor who shows well grown squash, cabbage, spinach, radishes, string beans, and lettuce, etc., may score a maximum of 270 while one who shows potatoes, celery, cauliflowers, onions, tomatoes, and sweet corn can secure 560 points. Common cabbage, savoy cabbage, red cabbage; green string beans, wax beans, lima beans and shell beans, are generally admitted as *distinct varieties;* cabbage lettuce and cos or romaine lettuce are also allowed as distinct.

The exhibitor having the largest number of distinct *kinds* of vegetables in a collection should take priority over one who shows more than one *variety* of any of the staple vegetables, such as two potatoes, or corn, or beans, or tomatoes, or beets; other points being equal.

Amateur judges will find that judging by a process of gradual elimination is the best course to follow. For scale of points to be used in judging see page 64.

How the American
World's

Enormous Acreages Devoted to Ornamental Plants, B
Deficiencies of the Old World, are

Early flowering Tulips

Extensive fields of Dutch bulbs showing a newly established industry on the Pacific Coast, and slat houses for Azaleas by the acre, will supply the deficiencies of present conditions. (Ward)

Home grown Azalea indica

Acres of greenhouses are devoted to raising ornamental Palms. 13 acres in one stretch here. (Dreer)

Kentia—an ideal house Palm raised by the million

The Sunny South contributes Cannas for the Northern trade (Conard & Jones)

One hundred thousand Sir Watkin Daffodil

How Roses are raised as a field crop to supply the trade (Berckmans)

Verbenas, Larkspurs, and other annuals in a California seed farm (Burpee)

'rade is Meeting the)emands

Flower and Vegetable Seeds, Etc., to Offset the War)lishing a New International Industry

Rhododendrons, four years from seed, at Cape Cod

A Colorado Zinnia farm—a little thought of industry. (Burrell)

Candytuft, Salvia, Petunia, etc., to supply the world's flower gardens

Lilium regale from home grown seed

On New England's shores new Chinese Evergreens, Rhododendrons and Lilies are being raised to supply home markets. (Farquhar)

Chinese Spruces and Firs quite at home

How a Western nursery is supplying the country's needs in ornamental Evergreens. Quantities of Junipers in many acres. (Hill)

Junipers in variety for ornamental planting

Radish seed by the ton for the world's war gardens (Morse)

UNCLE SAM'S GARDENING

A News Feature of National Current Activities

WE SHALL have our flowers this year, after all. With the tremendous insistence on gardening for a food supply, many of us began to fear that the flowers would be left out completely and that we should be almost wholly bereft of their joyousness and beauty—and that at a time when they are most surely needed! But we shall have them! What is more, the soldiers will have them—those in the camps, and those returned invalided from the other side.

No less than 38,000 florists, through the Society of American Florists and Ornamental Horticulturists have pledged themselves to a nation-wide giving of flowers to hospitals for sick and wounded soldiers. The flowers are to be distributed by the National League for Women's Service in the 40 states in which the organization works.

"When it is remembered that the florists' business has suffered severely under war conditions, and that many florists will be obliged to close their greenhouses during the coming winter because of the recent order of the Fuel Administration cutting down the florists' supply of coal 50 per cent., this precious gift takes rank with the most self-sacrificing deeds the war has called forth" says the Government report.

* * *

IN SPITE of the war, in some ways, perhaps, because of it, the demand for flowers is increasing, instead of lessening as florists had good reason to fear. Flowers are proving anew their age-old and most beautiful mission of being an antidote to the horrors of war—they are craved by soldiers returning from the trenches, they serve to soften the hard facts of life as lived under war conditions at home. One florist—a woman—reports selling many more flowers to the working people than before the war began. If this year, flowers may be had in abundance and cheaply, it will be a boon indeed to many of us.

The cutting down of the coal will prove a serious problem for the florists and we shall see radical changes in the type of flowers supplied. There will be a great increase in the growing of plants that require little heat. We shall see Larkspurs, Columbines, Canterbury Bells brought into bloom; also Lilacs and Forsythia in greater profusion than ever, the old-fashioned Calla Lily will again be used; we shall have Flowering Almond, Dwarf Plums, and Cherries all grown with but little heat as the Japanese grow them—probably Marigolds taken up and flowered indoors. It will be interesting to see.

* * *

A NEW movement has lately been launched in New York by the National Plant, Flower and Fruit Guild which insures flowers for the soldiers. This guild is a well known organization with an excellent reputation for sincere and very practical work. Its president is Mrs. John Wood Stewart, and Mrs. Margaret Deland, of Boston, is one of the national vice-presidents. The new movement is the formation of the Soldiers' Camp Garden Committee, under the direction of Mr. Maurice Fuld (chairman, I suppose, of the Committee) each of the sixteen great soldiers' cantonments is to have its garden—not only a vegetable garden, but a flower garden. Florists and seedsmen are already supplying the camps with all the seeds and bedding-out plants that they can spare. And since some of the soldiers have had gardening experience, and some are gardeners by profession, there is every chance that the depressing bleakness and sameness of these cantonments will be wiped out. On the other side, many soldiers have made attractive little gardens around their shacks and tents. This new work of the National Plant, Flower and Fruit Guild will be certain to have the coöperation of garden organizations and garden clubs near the cantonments.

* * *

THE assertion that "the city boy would be more bother than he's worth on the farm," has this year been hoed and raked and cultivated out of existence. The demand from the Massachusetts farmers is for "more of the boys." Farmers at first were reluctant to try them and a company of boys in Dorchester High School challenged thus—"Just let us come and we will show you!" And the farmers have been "shown." The supervisor of the triple unit at Concord, Mass., Mr. Carlton Staples, says he has demand for more than the 83 boys in his command, and the enthusiasm of these youngsters is very infectious. Of course there are farmers and farmers. These who knew something of boy nature have gotten "almost unbelievable results," that fair and generous treatment usually yields. These who have tried driving and exploitation have found that the average boy has something of the mule in his nature and becomes difficult. Camp Thomas, this "Farming Fifth" which is located in Concord town, had a Parents' and Employers' Day with prominent state officials present, and an informal coming-together time for employers and relatives of the boys. Representing as it does many nationalities and many extremes of social life the farm camp may be said to be a school of very practical democracy.

* * *

CONNECTICUT has been giving her boys a six weeks' training at the state Agricultural College before sending them to the farms. In Chicago, the boys from the technical high schools were taught to handle heavy draft horses, and to drive them successfully through the city streets, steering them past the posts of the elevated railway and avoiding collision with other vehicles. After this practice, it was thought they might safely steer an uncharted way between haycocks and enter a barn without taking off the barn doors. The boys also had lessons in the care of farm machinery. These and the traffic lessons were extremely popular. Two hundred and odd thousand boys have responded to the call for the Boys' Working Reserve. "This summer must not see an idle boy in America" has been the slogan.

* * *

AN INVALUABLE by-product of this "call to the farms," is that it gives the adolescent boy something of the advantages and few of the disadvantages of the old system of apprenticeship, when he learned by working with an older man as a learner at the older man's job. It has also given the city boy an idea he never had before of the value of farm work and the real skill and patience and industry involved. After this summer, never will he wish to make fun of the "Rube." Also the city and the farm folk will have a better understanding of each other.

* * *

NEVER before have our "prominent state officials" been kept so busy. They cannot be behind their electorate in patriotism, so for many of them life is as busy as for an opera star in the height of the season. And they must set an example. Patriotism now means work, not a single Fourth of July oration. It is pleasant to record that in Evansville, Illinois, the Mayor and members of the Board of Public Works worked in the fields, the Mayor driving the binder and his colleagues shocking the wheat. In Connersville the entire town stopped its business and went into the wheat fields, in Huntington 2,000 men each offered to give a day's work to the local harvest. Governor Capper of Kansas issued a proclamation calling on all ablebodied men and boys to enlist for the harvest and in ten days 40,000 men had enrolled, 10,000 of them in Kansas City.

ONE difficulty is "up" to Uncle Sam. There has been no hesitation about people volunteering to work to save the crops. Women have even responded to the call to cook and wash dishes and otherwise labor to feed the harvesters, but in states like Montana, where the harvest time is August, the increase in wheat acreage 43 per cent. and in rye 110 per cent., the demand for labor is very heavy nor is there a large city population to draw from. This labor situation could be met by bringing men from states farther south, where the work is over. The lien in the path is the increased cost of transportation and the impossibility of getting special rates as in former years under private ownership of the railroad. How is this, Mr. McAdoo? Can't you lend army trucks, or airplanes, or consider these soldiers of the soil as real soldiers and transport them for nothing?

* * *

AND here is another problem up to Uncle Sam, or perhaps the Florida branch of the Women's National Farm and Garden Association can solve it, whose president, if I remember rightly is the very energetic lady Mayor of Jacksonville. Florida farmers responded to the Administration's call for food production with a record acreage of white potatoes—37,750 acres, with the forecast of a production of 3,668,000 bushels—an increase of 1,500,000 bushels more than last year. And now the scarcity of labor and low price in the market, do not in many sections warrant gathering the potatoes. This news of the potatoes is from Clearwater. A representative of the growers in the Everglades region was lately in Washington conferring with the Food Administration. Farmers, who, urged by the Administration to plant food crops, have had to let many carloads of onions, cabbages, and many other vegetables go to waste in the fields. After they were produced there was no market for them. And while their onions were spoiling in the fields with market offerings not enough to pay for the gathering, people were paying seven cents a pound for onions at the very doorway of the Everglades. About 7,000 acres in the Everglades were planted to food crops, and that acreage can be doubled this autumn. The problem now before the country is to grow necessary food and get it to the consumer at as low a price as possible, and no carloads of onions or cabbages or potatoes must go to waste.

* * *

ONE would like to report that Uncle Sam had rushed driers and dehydraters to the Everglade farms, bought the crops himself and rushed some of his new camp-farmers to salvage the luckless onions and potatoes and store them for future use. But we only hear that a Food Administration official was surprised to hear the region was so productive! He had thought climatic conditions made production impossible.

* * *

THE California Development Board is backing a plan to give genuine assistance to a class greatly in need of it. They will finance the small farmers who at present cannot get assistance through the banks. Money will be lent farmers, renters, farmers with mortgaged lands, and others who are unable to increase their production. The borrower must be of good reputation in the community, a good farmer, and his lands adapted to the crops he proposes planting. "The big land owners must be induced to provide tractors for their tenants. Community fruit driers must be installed or financed where necessary, especially along the mother lode lands from Shasta to Mariposa, also along the north coast where, in Humboldt county more than one third of the apple crop went to waste last year for lack of driers." This is a long stop in the right direction.

FRANCES DUNCAN

Pink Daisy for Next Summer's Bloom

SHERMAN R. DUFFY

Quite Easy to Manage If Its Few Wants are Considered—Why Plants May Fail to Grow—A Long Season of Bloom and Pretty Foliage for Cutting at Any Time

THERE is a subtle attraction about a "daisy" from the "wee modest crimson tipped flower," Bellis perennis—better known as the Double or English Daisy—to the glistening white giants of the race of garden Daisies so appropriately named Shasta, their whiteness being likened to the snows on the peak of the lofty mountain of their California home. There are Daisies of all degrees of humility and of all grades of splendor—in fact Daisies abound, a Daisy being almost any member of the composite family with ray florets, with the exception of the Sunflower.

And of all the vast tribe of Daisies which grace the garden and the home none is more beautiful than the "Pink Daisy," "Summer Chrysanthemum," or "Perennial Cosmos," the last being the worst misnomer of all those applied to the Pyrethrum which has no generally accepted common name. Pyrethrum is an ugly term, yet our Pyrethrum according to the well known idiosyncrasies of botanical nomenclature isn't a Pyrethrum at all. It's a Chrysanthemum.

In the beginning it was Pyrethrum roseum, a native of the orient and earned a utilitarian although unbeautiful reputation as the material from which insect powder was made. This powder is also known as buhach powder and I have heard this beautiful garden flower desecrated by the name of buhach. I call it the Pink Daisy, which is descriptive, if nothing else, for the type and the majority of the genus are of varying shades of pink and rose. It was originally known as Pyrethrum roseum, as already mentioned, but is now classified as Chrysanthemum coccineum which is specifically a misnomer as the type is not scarlet.

However, "a Rose by any other name would smell as sweet," and the Pyrethrum by any name that may be applied remains one of the finest and most showy and generally satisfactory hardy perennials of the late May and early June garden.

Gardening is likely to develop a suspicious nature and when a plant is recommended as "hardy, and easy to grow in any good garden soil" nine cases out of ten there is a catch in it. There is, in the case of the Pyrethrum. It is not the easiest thing in the world to grow unless one is familiar with its habits and likes and dislikes. In fact in some soils it is not reliably hardy and will not grow at all; but given a little care and provided with suitable conditions nothing can rival it for a glorious sheet of bloom, and nothing so appeals to the youngsters as these Daisies. They can't keep away from them.

In addition to its value for garden decoration, the Pyrethrum is one of the finest subjects for cutting that can be grown. The flowers will last for ten days with an occasional change of water and clipping of the stems. In fact, the stems will start to decay before the flowers have lost their beauty. The ferny foliage is ornamental when the plants are out of flower.

IT IS many years since I first became acquainted with the "Persian Daisy" as it was then called, and although it has been in commerce for a long time, yet it is far from common. It ranges in color from deep crimson, maroon, scarlet, deep rose, deep and light pinks, to pure white; and there are a few so-called yellows, which, however, are pale and confined to the double types.

The double Pyrethrums rival the China Asters in size and beauty. In this form, the name "Summer Chrysanthemum" receives justification, for the double Pyrethrums in shape and general form closely resemble the Chrysanthemum types known as anemone-flowered and their kindred varieties, the doubling consisting not only of a multiplication of the ray florets but in the development and coloring of the disc florets which in many cases are of a different tint from the ray flowers, forming beautiful combinations of rose and pale yellow, crimson and light rose, white and pink, and so on.

The flower presents a great variety of form. Some have single rows of narrow petals with small discs, others have shorter and wider ray flowers with a larger disc. Some will have two or three rows of petals, some will be twisted as in the cactus-flowered Dahlias. Others will have collarettes as in the Dahlia of that type. There will be anemone-flowered—this term not being at all truthful, so far as my acquaintance with Anemones goes, but meaning that there will be a partial development of the perfect disc flowers. By selection different strains have been fairly well fixed and developed and to secure a good strain of Pyrethrums rigid selection is necessary. The double flowered forms are exceptionally fine.

"Pink Daisies" raised from seed in the author's garden. Plenty of bloom for cutting here

SOME 500 varieties are catalogued and in commerce, but the finer named varieties are comparative strangers to American gardens, and there is a reason. Right here is the catch in the culture of the Pyrethrum. It is very subject to a crown rot. After a healthy, vigorous growth and generous bloom, the plants often seem to dissolve or melt away into a nasty, black mess and it is "good night Pyrethrum." They are very difficult to import, a large percentage being lost in transit and as they have been developed in England (the firm of Kelway being largely responsible for their improvement and dissemination) few find their way to this country and the few established here must be propagated by division.

They will domesticate themselves like weeds in a light, rich sandy soil—unless planted too closely; but in heavier rich soil they may be made at home by planting them in raised beds and lightening the soil by the addition of sand, or under drainage by means of tiling. While emphasizing the necessity of drainage it must be added that they suffer from drought. Humus to retain moisture in suspension, therefore, is necessary.

As soon as it blooms the plant should be sheared off—leaves and flower stems both—close to the ground so that air may circulate freely. Otherwise the thick leaf mass is likely to rot and the plant is gone. In planting in masses they should not be placed closer than eighteen inches apart. Two feet will supply a fine mass in two seasons. The photograph accompanying this article is of a bed eighty feet long and four feet wide two years old from seed. As will be noted there is a wonderful profusion of bloom for so short a period. They were transplanted into their present quarters a year before the picture was made.

There are about 200 plants in the bed and the total cost was fifty cents for one packet of double and one of single seeds. In addition there are two named plants, one James Kelway, a brilliant scarlet, and Lord Roseberry, a huge maroon purple. They are the sole survivors of a purchase of a collection of named varieties most of which perished either on the way over or shortly thereafter.

The maroons, crimsons, and cerise shades are the most beautiful and likewise the rarest and the chances of securing any considerable number of dark colored varieties from packets of mixed seed are rare, indeed. However, there are likely to be a few and they must be selected and propagated to secure a stock or a chance taken on ordering named varieties and establishing them. The method of propagation is by division.

WHEN the clump has attained sufficient size and strength—say after three seasons—it should be dug after blooming when it will be found to consist of a number of distinct tufts which may be pulled apart, each portion being a prospective plant. These should be potted off, supplying generous drainage by means of broken crocks in the bottom of the pot and rich earth, watering just enough to keep the ground moist but not wet and they will soon establish themselves.

Unfortunately, the high priced named varieties do not seem to be very self fertile. I have tried for three seasons to segregate the scarlet James Kelway and save seed to secure a stock of dark varieties but have to date failed to secure any seed.

The Pyrethrum gives scattering bloom throughout the season. After it is cut down either give a light top dressing of pulverized sheep manure or dig in bone meal. A few flower shoots are bound to respond and when the new leaf growth appears late in summer a supply of fall blooms will be given.

So far as I know after many years' experience with this plant, it hasn't an enemy in the world in the way of insects. It ought not to have any, as the pulverized leaves form the basis of the well known insecticide.

IF SEED can be procured as soon as it is ripe and then sown there is considerable saving in time as a fair percentage of the young plants will give bloom the following season. However, it is not often easy to secure fresh seed so the best that can be done is to sow them in the spring, taking care of the drainage until they are safely past the damping off stage. As soon as the seedlings have made three or four leaves they may be transplanted to permanent quarters. The seedlings show in the relative darkness of stem and foliage whether they will be dark or light colored.

There have been some specialized forms, such as the cactus-flowered, the anemone-flowered, or the cosmos-flowered but as the Pyrethrum does not come true from seed, only a percentage of any batch of seedlings is likely to reproduce its parent. If there is 20 per cent. double flowered plants from one package of double seed, it is a very high proportion. I never got it!

Home Drying of Fruits and Vegetables

A. LOUISE ANDREA

(This is a chapter taken from the recently published book "Home Canning, Drying and Preserving" and which is a compendium of practical household application of the topics of which it treats.*—EDITOR)

DRYING is one of the oldest methods of food preservation. The foods that were formerly dried at home were apples, peaches, beans, and corn, but I'm inclined to think that Mother Nature attended more to the drying of the beans than did the family. For those who contemplate drying or "evaporating" in their home kitchens, the equipment need not be expensive, but if much food is to be preserved the drier will necessarily be somewhat bulky. Driers can be used on the cool parts of a range or suspended above it. The latter method does not require such careful watching but will take longer.

Two things are important to remember when drying; (a) to have the temperature right and (b) to dry the foods so that a slight degree of moisture is left—from 10 to 20 per cent. The drying temperature can be maintained by using a thermometer, but to know just when food is dried to the correct stage must be learned rather by actual experience than from recipes.

The usual test to determine whether the product has been properly dried is to cut a portion and see if any moisture can be pressed from the cut ends. The food should be like a piece of leather—pliable, and easily bent without cracking. In fact, if the piece snaps and breaks off, it is, in all probability, too dry.

After the actual drying is finished, the next step is called "conditioning," which means that the dried food is left standing for several days at the temperature of the room to absorb moisture from the air. During this time it should be stirred occasionally or changed from one container to another so that the conditioning will be uniform.

Drying may be done out in the sun. In this instance the product should be placed in layers on trays (that have first been covered with white cheesecloth).

Drying by artificial heat, such as that from the kitchen stove, is accomplished by having the trays—or drier with its various trays—placed either on the cool part of the range, or, as previously mentioned, suspended over it. Another way is to use the surplus heat in the oven of a coal range. When this is done and the fire is moderately hot, both oven and top of range may be used. When oven-drying the door should be left partly open for two reasons; one to allow a circulation of air in the oven, and the second to prevent the product from being cooked instead of dried.

Another drying process is by means of heated air in rapid motion. This requires the use of an electric fan. The trays are placed at a slight angle say of 300, at one end of a range and the fan at the other side so that the heat from the range is driven over the trays by the fan.

In mere drying, a slow process necessarily, changes of color and flavor occur through the volatile essences being lost, as these evaporate with the water content. Whereas dehydration, scientifically perfected now, ensures a rapid removal of just the water. I have frequently cooked and served at the same meal vegetables just picked from the garden—spinach, carrots, turnips, etc.—and the same vegetables dehydrated several months previously. Not a person eating them could tell which was which.

Foods to be prepared for home drying should be looked over carefully; all wilted, decayed parts and foreign matter removed, then thoroughly washed to cleanse.

Apples, Pears, Peaches, Plums and Apricots.—The first two are usually pared, cored and cut into slices one-fourth inch thick before drying, while peaches, apricots and thick skinned plums (similar to the prune plum) are left unpeeled, cut in halves and stones removed. The plum can be slit to extract stone without cutting in two pieces. To prevent apples and pears from discoloring they are dipped into either acidulated water (juice of one lemon to a gallon of water) or weak salt water (eight level teaspoons salt to one gallon water) and then dried between towels and placed in single layers on trays. The peaches and apricots are placed on trays with skin side down and plums slit side up to prevent loss of juice. The temperature for all five fruits is the same—starting at 110° and increasing very gradually to 150°. Time required is from 2 to 6 hours. While drying, the fruits should be turned so that they dry uniformly.

Small Berries—Look over carefully and use only perfectly sound berries; crushed or broken ones will lose their juice and consequently will lack flavor. (Do not wash them unless dirty (this refers to home-gathered fruits). Place on cheesecloth covered trays and dry at a temperature of from 110° to 140°. Do not raise temperature too rapidly or the outsides will dry before centres do, which would cause spoilage when stored. Time required, from 3 to 4½ hours.

The usual test to ascertain when product is properly dried is to press a berry between the fingers; if it stains, continue the drying.

Berries should not be dried until they become hard enough to rattle. Place in boxes—uncovered—and let stand in room temperature 2 to 3 days to "condition." Then store in air-tight containers.

Cherries—These are of better shape, color, and flavor when they are not pitted. Much juice is lost with the removal of the stone which naturally lessens the flavor. Wash in cold water, dry between clean towels to remove surface moisture, then stem and place in single layers on cheesecloth-lined trays. Start temperature at 110° and gradually increase to 150°. Time required from 3 to 4 hours. Test for dryness is the same as for berries. Place in boxes—uncovered—and let stand several days to "condition"; then store in air-tight containers.

Drying vegetables—The few rules given for drying fruits are applicable to vegetables; removal of all wilted and decayed products, thorough cleansing, and removal of surface moisture. When drying leaves and stalks (such as spinach with stems, or celery leaves and stalks), a better finished product is obtained if leaves are dried separately from the stalks. When spinach is so treated the dried stems may be added to the dried leaves; the stems in many instances being much thicker than the leaves (which means that the former will take longer to dry than will the latter), the leaves, if dried with the stems, would be over-dried by the time the stems were ready. During "conditioning" this would right itself to a degree, but the better way is to dry each separately and mix afterward.

Leaves of vegetables such as spinach, beet tops, etc., may be cut small or dried without cutting. Blanch in boiling water 10 minutes, drain and dry thoroughly. Place in thin layers on trays and dry at from 110° to 145° temperature. Time required, from 2 to 3 hours. Let stand in uncovered containers several days to "condition"; then store in air-tight containers.

Root vegetables—such as turnips, carrots, beets, etc., are scrubbed and washed thoroughly with a brush to remove all dirt, then cooked until two-thirds done, peeled, and cut into slices a quarter of an inch thick and placed on trays. Temperature required, from 110° gradually increasing to 150°. Time from 2 to 3 hours. Place in boxes—uncovered—and stand in room temperature for several days to "condition"; then store in air-tight containers.

Dried Corn—Select corn in its prime; husk and cook in boiling water from 3 to 5 minutes, to set the milk; drain and cut from cob (being careful not to cut too deep), and place on trays in thin layers. Start drying at 110° and gradually increase to 145°. Time required, from 3 to 4 hours. Stand several days in uncovered boxes to "condition." Store in air-tight containers.

Dried Peas—Shell and blanch in boiling water for 3 minutes; drain and dry between towels. Place on trays and dry at a temperature of from 110° to 150°. Peas usually require from 3 to 4 hours to dry. Let stand several days, in uncovered boxes, to "condition." Store in air-tight containers.

Lima Beans—Shell and blanch from 5 to 10 minutes in boiling water, dry between towels, place on trays and dry at a temperature of from 110° to 145°. Time required, from 3 to 4 hours. Let stand several days in uncovered boxes to "condition." Store in air-tight containers.

String Beans—Wash, string, stem, and cut into inch lengths. Blanch for 10 minutes in boiling water, drain, and dry between towels. Place on trays and dry at a temperature of from 110° to 145°—raising temperature gradually. Time required, from 2 to 3 hours. Pour into uncovered receptacles and stand several days to "condition." Store in air-tight containers.

Cabbage—Cut in halves, remove core and soiled outside leaves, then shred with a sharp knife or cabbage slicer. Blanch in cheesecloth bag for 10 minutes in boiling water, drain and dry between towels. Arrange in thin layers on trays and dry at a temperature of 110° to 145°. Time required, from 2½ to 3½ hours. Pour into uncovered receptacles and let stand several days to "condition." Store in air-tight containers.

Onions—Peel, slice, and blanch in wire basket, in boiling water, for 5 minutes; drain and dry between towels. Place in layers on trays and dry at a temperature of from 110° to 140°. Time required, from 2 to 3 hours. Pour into uncovered receptacles and let stand several days to "condition." Store in air-tight containers.

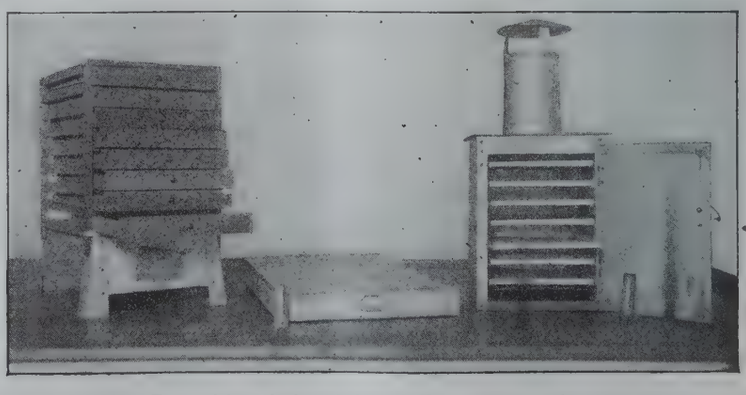
Soup Vegetables—When drying the vegetables that are ordinarily used to flavor soup stocks—such as carrots, onions, cabbage, turnips, leeks and parsley—a proportion of each may be dried, mixed, conditioned and then stored in one container and so be ready to use when making soup.

When Does A Potato Grow Most?—It is interesting to learn the result of some experiments conducted by the Department of Agriculture of Victoria, Australia, in observing the growth of the potato. Conclusions reached show that in the first month of growth the root develops 41 per cent. of its total and by the second month 52 per cent. of its entire growth. As to the haulm or vine, the figures are 22.5 per cent. of the total for the first month and 49.8 per cent. during the second month. The authors of this draw the conclusion that considerable plant food must be available during these two months. It is also interesting to learn that the tops or vines are particularly valuable as a fertilizer. The amount of food contained in the haulms per acre is: nitrogen 45 lbs.; phosphoric acid 7 lbs.; potash 84 lbs.; lime 51 lbs. One ton of haulms supplies three times as much nitrogen and phosphoric acid and about ten times as much potash as a ton of farmyard manure. The potato requires an abundance of potash during its growing period, using phosphoric acid, nitrogen, and potash in the ratio of 1-4-6.

Dangerous Barberry Bushes.—Lest there should be any misunderstanding! Though the common upright Barberry—the European form—now runs wild in some sections, it is a dangerous plant to the grain grower. The gardener is quite safe in continuing the use of the Japan Barberry, Berberis Thunbergii. The common tall European Barberry, both in its green and purple leaved forms, is dangerous to farmers inasmuch as it harbors the rust fungus that causes black or stem rust of wheat, oat, rye, and barley. The Japanese Barberry does not bear the rust, and is, therefore, perfectly safe for planting in ornamental groups.—*L. B.*

*Home Canning, Drying and Preserving by A. L. Andrea, illustrated, pp 150. (Garden City N. Y., Doubleday Page & Co.) price $1.38 mailed

Dried products can be put away in any convenient container



Types of dryer for household use. There are many others

Two views of the same piece of land showing the change in one season. Clearing land is good work for the fall and winter so as to be ready for spring planting

Turning Idle Acres into Profit

GARRETT M. STACK

Clearing Neglected Land of Boulders, Stumps, and Brush for Food Crops—Methods and Expense Entailed

CLEARING land in order to make it available for food crop production is no little problem under present conditions. With the desire to increase the acreage under profitable production and at the same time to do this as economically as possible when confronted with the difficulty of procuring adequate labor, attention may well be given to modern mechanical means. We are looking to our cut over timberlands grown up to brush and worthless trees, and to our wornout tillable areas as our "munition" fields. Some of these are well worth the attention and indeed the small areas around cities and in suburban developments have already been drawn into service. Thousands of people have lately acquired some knowledge of how to go about the business of turning land into food factories. One question is: can the plan be pushed farther? The bigger question is: can we afford *not* to push it farther, and to leave out of our future plans the reclamation of such areas as we have referred to above. Many of these neglected fields have an accumulation of leaf mold and humus that has added fertility to the soil and their latent productive power is greater than that of many other acres that have been under improvident tillage and in which the plant food has been burnt up.

Of course any gardener can improve his land on the "instalment plan" by removing boulders, stumps, and brush when he has no other pressing work on hand, and eventually clear an acre of "new land" in a year without seriously feeling the expense; but the person attempting a "clean sweep" of ten acres or more of very stony land soon realizes that it is not an ordinary problem.

As an example of clearing land on an extensive scale, I cite from my own experience with ten acres of stony brushland.

The location was very promising—deep soil with hardpan not near the surface, and situated close to the railroad depot. The land was rolling but not too steep for the use of modern farm machinery. Owing to the favorable location, the time saved in marketing from it prompted the clearing of boulders, brush, and stumps so that the fields could be placed under more intensive cultivation. Stone walls enclosed the fields in irregular shapes; cross walls divided them into small fields and utilized a rod of space that could not be planted to crops. Our first move was to tear down a cross wall, giving a contractor all the stone, provided he would make a "clean sweep." The following March we began to clean the land for crops. The obstacles in our way were as follows: boulders and stones which could be removed without blasting; brush, and stumps and boulders too large to handle without blasting. Our campaign against them was then taken in the following order:

Remove all loose stone and small boulders from an acre and then proceed to another. Pull all brush during the same period. Proceed to another with the small stone and brush removal work, and at the same time commence blasting of stumps and boulders on the first plot. Return to the blasted acre and remove the fragments of rock and stumps, burn stumps and brush, and fill in holes with a two horse scraper.

The work of removing small stones and boulders required the services of three men and a team. One man was detailed in digging around stones which seemed small enough for horses to pull out; the second man was equipped with crowbar and a huge wooden lever, and brought to the surface small boulders no larger than a barrel, helping the man with team to load them on a stone boat. The product was carted to the fences. At the outset we found that the logical procedure was to start at the sides and work halfway into the field; and in tackling the next acre to proceed to a place as far away from the blasting work as possible. We attempted to bury all the small stones, but it proved to be too expensive. The brush was easily pulled by the assistance of a team and a man with an axe. Brush is removed, roots and all, much better when the tops are left than if they are cut off near the ground.

Turning to dynamite for rock and stump work, we seldom drill a hole in a boulder that we can find the bottom of; we smash it to pieces so small that very often the same stone can be placed back in the hole and covered with enough earth so that the plow will never reach the pieces.

Burying a boulder in the same hole from which it comes, seems like putting a pint of peanuts into a thimble, but nevertheless it can be accomplished. First, a hole is punched in the ground under the stone with a round iron bar, and one, two or three sticks of dynamite placed in, according to the size of the stone; if it is of elephant size, very often three or four holes are made, and as much as ten pounds of dynamite placed in them. They are discharged simultaneously by electric detonators. This invariably results in lifting the boulder entirely out of the hole and deepening the hole at the same time. Of course it is necessary to dig out around the stone until there is no earth to bind the sides at the widest diameter. The passing out of the hole of the boulder increases the size of the hole.

Mudcapping is the quickest way of making trap rock out of a boulder; it takes more dynamite but saves a lot of stone hauling and drilling, and my records show that time and expense of labor are both saved. After the boulder is out of its resting place, I select a flat spot on top and take enough dynamite out of the paper shells, press it gently with my hands against the rock, put the paper shells on top of it, place the cap and fuse (electric) in the dynamite, and then make a "mud pie" in the earth; this must be real mire and not of a sandy nature. I then place the mud on the dynamite to a depth of one foot on all sides, and sprinkle with water to keep out the air. Next, another charge is placed on the side with the aim to push the broken stone back in the hole. Placing the charge on the side is difficult, unless there is a pocket or shelf to hold the dynamite—if this is not present I build up a pocket by placing some stones against the boulder and then make a mudcap similar to the one placed on top of the boulder. I connect them together with electric wires, reel out a few hundred feet of wire, and fire it with a blasting battery; eight times out of ten the boulder will be eliminated; if half of it can be placed in the hole we have more than paid for the dynamite. Mudcapping a boulder should not be attempted near a house, unless the stone is covered with a piece of wire netting, fence wire, and brush to stop the flying stone.

If the boulder is on top of the ground, or nearly so, a hole can be made under it with a square spade, and the sticks of dynamite placed in the hole without taking them out of the shells; and a mudcap placed on top of the stone. The double force will smash it in the same manner as the boulder that was placed back in the hole; a hole will also be in the ground, because dynamite works in all directions—not only downward but upward as well.

When a stone is very large and only a portion shows above the ground, we do not dig it out entirely; a couple of holes are made in the earth on the sides with half-sticks of dynamite; a mudcap is placed on top and another on the side; the result is the breaking off the top of the stone so that earth can be placed on top of it, leaving it below the plow.

Stumps are hard to remove, especially if they are green and have fibrous roots. The taprooted trees are easier, because a hole can be bored in the largest root, and a small charge of dynamite will break them into pieces easily handled.

What is the cost of clearing boulders per acre? I have known of land that cost three hundred dollars per acre to clear free from stumps, boulders, and brush; other acres right near it that did not cost more than fifty dollars per acre. Our ten-acre field cost nearly one hundred dollars per acre for labor, teams, and material—the dynamite cost nearly thirty-eight dollars using 40 per cent. low freezing dynamite. Six weeks' time was used from the beginning of work until the plowing was finished and the ground ready for potatoes, corn, and onions.

This is good work for late summer and early fall to have the land ready for spring and besides the explosive works better on the soil when it is dry, the disturbance being in a way a partial plowing. Fruit trees may be planted on dynamited soil with the assurance of root room being available.

A spot in the alpine garden on May 2. Moss Pink (two patches) with Creeping Phlox between

Gravel "core" of the garden, used to insure essential drainage. Soil is placed on this, and rocks then "built"

As construction proceeds, rocks are arranged to ensure niches and vertical crevices

Building a Rock Garden

WILLIAM EDWARD DAVIS, JR.

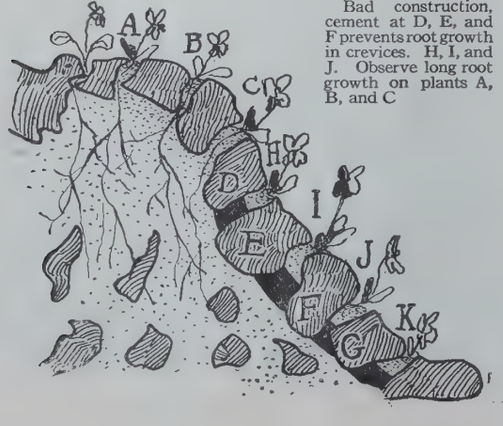
The maker of a successful rock garden in Connecticut tells how to proceed—Work for the moment, to be ready for next year

ROCK or alpine gardening is most fascinating. The charm of the diminutive mountain plants, bursting into bloom through the melting snow, and continuing with their mats and curtains of different color into the autumn, creating a surprise for each morning, can not be equaled by any other flowers; and, contrary to popular prejudice, "alpine" culture is as easy as it is delightful. There are only a few fundamental laws to obey, and if these are faithfully respected, the gardener will be wonderfully repaid.

In the plantation of alpines nature must be copied as to environment as truly as possible. The high Alps being barren of forestation, it follows that no rock garden must be placed under trees, for the dripping winter rain would not only kill the plants themselves but the tree roots would sap the nourishment from the soil, even though the trees were some distance away. Full exposure is essential. Abundant drainage must be provided, for the fastidious alpines will not tolerate stagnant water.

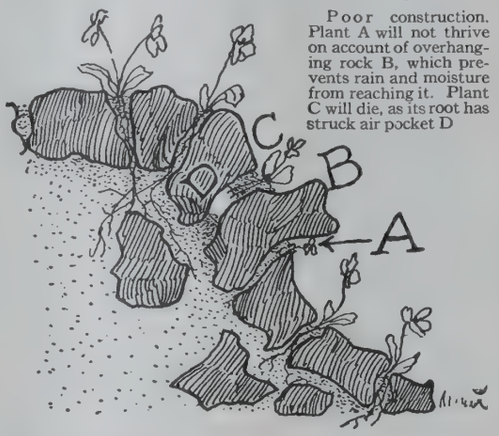
WITH these fundamental principles firmly in mind, the erection of the rock work can be started. Native rocks which are near at hand should by all means be selected. It is an error to use other than domestic material, and weather beaten rocks are preferable to those with newly cut surfaces. Artificial stone, brick, clinkers, and cement monstrosities should be tabooed. Adhere closely to the natural, and your result will be accordingly true and artistic.

Even as a mountain for some distance around it shows here and there outcroppings of rocks, so the builder of an alpine garden should have rocks projecting from the ground, which should become more infrequent as the distance from the main rockery increases—a rock garden should never rise abruptly from the lawn. Another point is, locate it as far as possible from buildings and formal surroundings, for their association is incongruous.

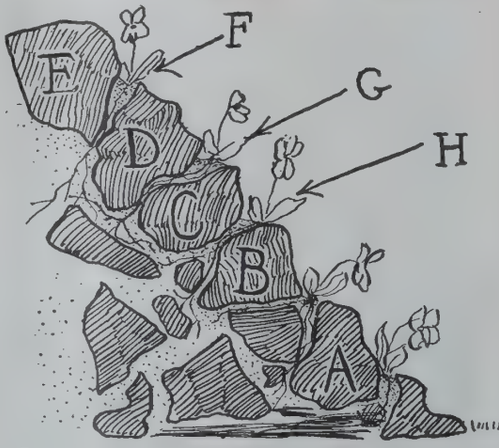


Bad construction, cement at D, E, and F prevents root growth in crevices. H, I, and J. Observe long root growth on plants A, B, and C

WHEN placing the rocks it is advisable to excavate for about two feet and to fill this with broken bricks or rocks, or any material that will create excellent drainage unless the site is naturally very fully drained. The largest rocks should then be put in place, two thirds buried in the earth, and the various strata of rock should lie in the same direction. The base of the rockery now being prepared, grit, small broken stone, soil and sand are placed on and between them, thoroughly tamped and wet down with the hose, so the utmost settlement will take place immediately, and not the following winter, when it will disturb, if not actually kill the plants. Too much emphasis cannot be placed upon this.



Poor construction. Plant A will not thrive on account of overhanging rock B, which prevents rain and moisture from reaching it. Plant C will die, as its root has struck air pocket D



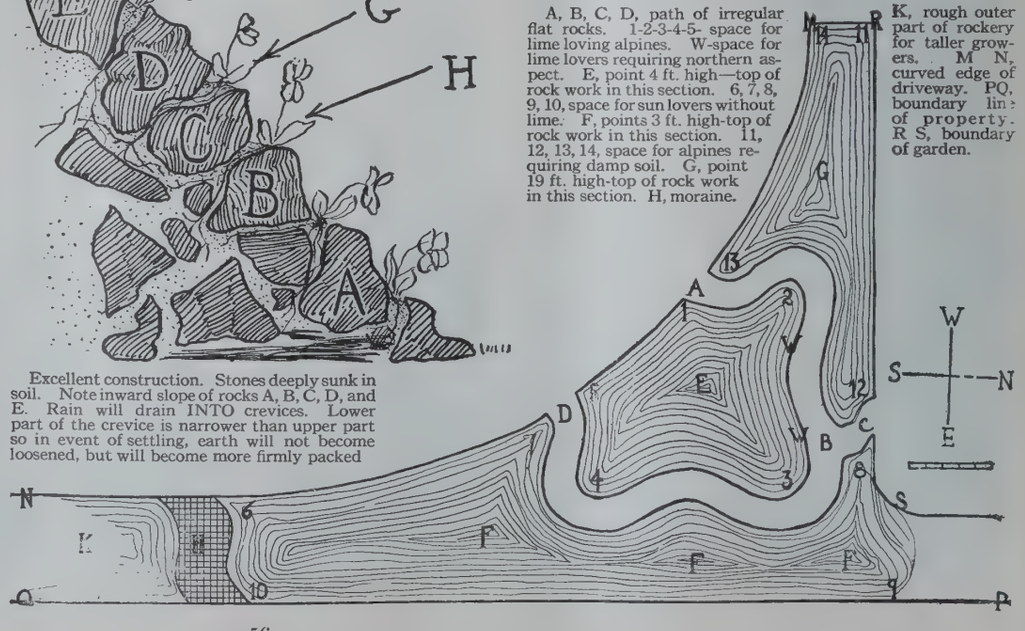
Excellent construction. Stones deeply sunk in soil. Note inward slope of rocks A, B, C, D, and E. Rain will drain INTO crevices. Lower part of the crevice is narrower than upper part so in event of settling, earth will not become loosened, but will become more firmly packed

Never place rocks so that they overhang the rocks beneath, as this ledge prevents water from reaching whatever may be planted beneath it. The second tier of rocks should be placed so their faces are nearer the centre of the rock garden than the tier below, and this should be done with each succeeding tier. All stones should be placed so the rain will *drain INTO the rockery* to give moisture to the plant roots, and not be allowed to drain off and wasted. Five feet is sufficient height for a small rockery, as the topmost plants are then on a level with the eye, and can be easily enjoyed.

Old sod, more grit and pieces of stone, soil, and old lime rubbish should be added and thoroughly tamped in as work proceeds. The last can be had from any old building that is being torn down, and the refuse of the bricklayer and plasterer is waiting for him who will take it away. A large number of alpines are lime lovers, and this they enjoy and demand.

As a finishing touch, go over the work again with the hose, and tamp still further all earth into the crevices and fissures between the rocks and leave no air spaces. Alpines, though small and seemingly living on the rocks have extremely long toots, extending deeply between the rocks in search of moisture. If these roots strike an air pocket it means death.

Cement should never be used in construction work. Water dripping over the rocks is especially attractive, and can be inexpensively arranged to be turned on or off at will. Still



A, B, C, D, path of irregular flat rocks. 1-2-3-4-5- space for lime loving alpines. W-space for lime lovers requiring northern aspect. E, point 4 ft. high—top of rock work in this section. 6, 7, 8, 9, 10, space for sun lovers without lime. F, points 3 ft. high-top of rock work in this section. 11, 12, 13, 14, space for alpines requiring damp soil. G, point 19 ft. high-top of rock work in this section. H, moraine.

K, rough outer part of rockery for taller growers. M N, curved edge of driveway. PQ, boundary line of property. R S, boundary of garden.

water in the form of little ponds is out of place in a rock garden.

The diagram shows how a small space can encompass all the requirements of most alpines, those that demand sun, shade, poor soil, sandy peat, damp soil and lime, northern and southern aspects, and crevices. A winding path paved with irregular flat rocks, with tiny Sempervivums peeping through the cracks, unfolds a new vista at every turn. The arrangement has been worked out with care, so that in one and the same little alpine garden the lime-loving Saxifrages are happy, and the Primulas are at home in the shady northern nooks; Saponaria ocymoides is draping the rocks with a mass of brilliancy, and the easily satisfied Aubrietias, Helianthemums, Iberis, and other plebeians of the rock garden are rioting in the sun.

ONE HUNDRED ALPINES EASILY RAISED FROM SEED FOR AMERICAN ROCK GARDENS. The popularity of alpine gardens in this country will be still further increased when it is realized that practically all the alpine plants can be raised from seed. These following have been tested in this climate, and found most satisfactory. The popular conception of the "alpine" plant is one of minute and dwarf growth, and in making this selection of plants this fact has been borne in mind. The directions for soil must be carefully followed for the best results. It should be remembered that the dwarf stature is related to the poor mountain soil in which they live. Consequently enriching the soil would either kill the plants themselves, or cause such robust growth that they would be no longer suitable for rock garden. All alpines demand good drainage, and this MUST be provided. Some seeds are very slow to germinate, especially the Gentians, Iris, and Ranunculus, and patience is required.

NAME OF ALPINE	HEIGHT IN INCHES	COLOR	BLOOMING SEASON	ASPECT	SOIL
Achillea tomentosa (Milfoil or Yarrow)	6	Sulphur yellow	Summer	Sun	Light soil.
Adonis vernalis	12	Yellow	Spring	Sun	Moist heavy loam. Dislikes disturbance.
Aethionema jucundum (Lebanon Candytuft)	3	Pink	Summer	Sun	Light soil, sloping position. Dislikes disturbance and damp soil.
Alyssum saxatile compactum (Rock Madwort)	9	Yellow	Spring	Sun	Light soil.
Alyssum saxatile citrinum	6	Pale yellow	Spring	Sun	Light soil.
Androsace carnea (Rock Jasmine)	4	Rose	Summer	Sun	Deep mixture of peat and sandy loam.
Androsace sarmentosa	6	Rose, white eye	Summer	Sun	Deep mixture of peat and limestone.
Anemone alpina (Wind Flower)	6	White, pink	Spring	Partial shade	Loam, somewhat damp.
Aquilegia canadensis (Columbine)	9	Orange, red	Spring	Sun	Deep, moist rich loam.
Aquilegia flabellata nana	12	White	Spring	Sun	Deep, moist rich loam.
Arabis alpina grandiflora (Rock Cress)	6	White	Spring	Sun	Light dry soil.
Arabis rosea	6	Rose	Spring	Sun	Light dry soil.
Arenaria montana (Sandwort)	6t	White	Summer	Partial shade	Light sandy loam. Plant to drape over rocks.
Arenaria maritima Laucheana	6	Crimson	Summer	Sun	Sandy soil.
Aster alpinus magnificus	6	Blue	Summer	Partial shade	Ordinary garden soil.
Aubrietia Dr. Mules (False Rock Cress)	6	Purple	Spring	Sun	Any soil. Plant on slope or to drape over rocks.
Aubrietia Fire King	6	Crimson	Spring	Sun	Any soil. Plant on slope or to drape over rocks.
Aubrietia graeca	6	Deep Violet	Spring	Sun	Any soil. Plant on slope or to drape over rocks.
Aubrietia Lavender	6	Lavender	Spring	Sun	Any soil. Plant on slope or to drape over rocks.
Aubrietia Leichtlini	6	Carmine	Spring	Sun	Any soil. Plant on slope or to drape over rocks.
Aubrietia Moerheimi	6	Lilac pink	Spring	Sun	Any soil. Plant on slope or to drape over rocks.
Calandrina umbellata (Rock Purslane)	6	Dark crimson	Summer	Sun	Hot, dry sandy loam.
Campanula caespitosa (Hairbell, Bell Flower)	6	Blue	Summer	Sun	Sandy loam and lime. Plant in a crevice.
Campanula carpatica	12	Violet	Summer	Sun	Sandy loam and lime.
Campanula carpatica alba	12	White	Summer	Sun	Sandy loam and lime.
Campanula garganica	6t	Blue	Autumn	Sun	Sandy loam and lime. Plant in vertical crevice.
Campanula muralis (syn. Portenschlagiana)	6	Purple blue	Summer	Partial shade	Sandy loam and lime. Plant in a crevice.
Campanula Stansfieldi	9	Pale blue	Summer	Partial shade	Well drained loam. Plant in a crevice or level place.
Cerastium tomentosum (Snow in Summer)	6	White	Summer	Sun	Hot, dry, poor soil.
Dianthus arenarius (Sand Pink)	6	Pale purple	Summer	Sun	Dry sandy soil.
Dianthus caesius (Cheddar Pink)	6	Pink	Summer	Sun	Poor sandy soil and lime. Plant seeds in a vertical crevice where to grow.
Dianthus deltoides (Maiden Pink)	6	Rosy purple	Summer	Sun	Light sandy soil.
Dianthus graniticus (Granite Pink)	9	Red	Summer	Sun	Poor, gritty soil.
Dianthus petraeus	6	Rose	Summer	Sun	Dry, sandy soil and lime.
Dianthus suavis (Sweet Pink)	12	White	Summer	Sun	Sandy loam. Plant to drape over rocks.
Draba azoides (Whitlow Grass)	3	Yellow	Spring	Sun	Dry sandy soil.
Gentiana septemfida (Gentian)	12	Light blue	Summer	Sun	Moist cool, sandy peat and loam.
Geranium argenteum (Crane's Bill)	6	Purple	Summer	Sun	Well drained sandy loam.
Geum montanum (Mountain Avens)	6	Yellow	Summer	Sun	Sandy loam.
Gypsophila cerastioides	3	White, violet stripes	Summer	Sun	Sandy soil and lime.
Helianthemum mixed (Sun or Rock Rose)	12	Red, yellow	Summer	Sun	Light, poor soil. Cut back hard after flowering.
Houstonia caerulea (Bluets) (a)	2	Pale blue	Spring	Sun	Peat, sand and leaf mould.
Ibiris gibraltarica (Candytuft)	12	White, purple	Summer	Sun	Light loamy soil.
Ibiris sempervirens	6	White	Summer	Sun	Light loamy soil.
Iris cristata	6	Blue, lilac	Spring	Sun	Sandy loam. Plant on level place.
Iris pumila	6	Purple, yellow, white	Spring	Sun	Sandy loam. Plant on level place.
Leontopodium alpinum (Edelweiss)	6	White	Summer	Sun	Very poor gritty soil and lime.
Linaria alpina (Toad flax)	4t	Orange, violet	Summer	Sun	Poor soil.
Linum capitatum (Flax)	9	Yellow	Summer	Sun	Light sandy soil.
Lithospermum prostratum (Gromwell) (b)	6t	Blue	Summer	Sun	Peat and well drained sandy loam. Plant to drape over rocks.
Lychnis alpina (Campion)	3	Red, purple	Summer	Sun	Moist sandy loam.
Lychnis Lagascae	4	Rose purple	Summer	Sun	Moist sandy loam. Plant in a crevice.
Myosotis rupicola (Forget-me-not)	4	Deep blue	Spring	Sun	Damp, well drained soil.
Oenothera missouriensis (Evening Primrose)	8	Yellow	Summer	Sun	Light rich well drained soil.
Papaver alpinum (Poppy)	6	White, orange, yellow	Summer	Sun	Poor soil. Sow seeds where expected to bloom.
Phlox sublata (b)	6	Rose	Spring	Sun	Light garden soil.
Phlox sublata atropurpurea (b)	6	Purple rose	Spring	Sun	Light garden soil.
Phlox sublata lilacina (b)	6	Lilac	Spring	Sun	Light garden soil.
Phlox sublata Nelsoni (b)	6	White	Spring	Sun	Light garden soil.
Plumbago Larpentae (Leadwort) (b)	9	Deep blue	Autumn	Sun	Light sandy soil.
Primula Bulleyana (Primrose)	18	Apricot	Summer	Partial shade	Rich moist loam.
Primula Veitchii	12	Rose	Summer	Partial shade	Rich moist loam.
Primula veris (English Cowslip)	6	Yellow	Summer	Partial shade	Rich moist loam.
Primula vulgaris (English Primrose)	6	Yellow	Summer	Partial shade	Rich moist loam.
Ramondia pyrenaica (Rosette Mullein)	6	Violet	Spring	Shade	Peat and loam. Plant in vertical crevice (north side, in shade).
Ranunculus amplexicaulis (Buttercup)	9	White	Summer	Sun	Cool light loam
Ranunculus graminaeus	12	Golden Yellow	Summer	Sun	Cool light loam.
Saponaria ocymoides (Soap wort)	9t	Rosy purple	Summer	Sun	Deep loam. Plant to drape over rocks.
Saxifraga apiculata (Rockfoil)	6	Yellow	Spring	Sun	Grit and lime.
Saxifraga caespitosa	12	White	Spring	Sun	Gritty soil. No lime.
Saxifraga Guildford Seedling	9t	Crimson	Spring	Partial shade	Gritty loam. No lime.
Saxifraga oppositifolia	6	Purple	Spring	Sun	Poor soil. No lime.
Saxifraga Rhei	6	Rose	Spring	Partial shade	Gritty loam. No lime.
Saxifraga sancta	6	Yellow	Spring	Sun	Gritty loam and lime.
Saxifraga Wallacei (syn. Camposii)	6	White	Spring	Sun	Gritty soil. No lime.
Sedum brevifolium (Stonecrop)	3	White	Spring	Sun	Poor soil.
Sedum dasyphyllum	2	Rose	Summer	Sun	Poor soil.
Sedum Ewersii	6	Pink	Summer	Sun	Poor soil.
Sedum glaucum	4	Pink	Summer	Sun	Poor soil.
Sedum Kamtschaticum	9t	Orange	Summer	Sun	Poor soil.
Sedum obtusatum	3	Yellow	Summer	Sun	Poor soil.
Sedum pulchellum	3	Pink	Summer	Sun	Poor soil.
Sempervivum arachnoideum (Houseleek)	3	Red	Summer	Sun	Poor soil.
Sempervivum dolomiticum	4	Pink	Summer	Sun	Poor soil.
Sempervivum fimbriatum	6	Crimson	Summer	Sun	Poor soil.
Sempervivum Laggeri	4	Crimson	Summer	Sun	Poor soil.
Sempervivum montanum	6	Purple	Summer	Sun	Poor soil.
Sempervivum Pittoni	4	Red	Summer	Sun	Poor soil.
Sempervivum triste	6	White	Summer	Sun	Poor soil.
Silene alpestris (Catchfly)	4	White	Summer	Sun	Light gritty, sandy soil.
Silene maritima (Sea Campion)	4t	Pink	Summer	Sun	Light gritty, sandy soil. Plant to drape over rocks.
Silene Schafta	6t	Purple	Summer	Sun	Light gritty, sandy soil.
Thymus azoricus (Thyme)	3	Purple	Summer	Sun	Light well drained soil.
Thymus serpyllum alba	3t	White	Summer	Sun	Light well drained soil. Plant to drape over rocks.
Thymus serpyllum coccineus	3t	Crimson	Summer	Sun	Light well drained soil. Plant to drape over rocks.
Tunica saxifraga	6t	Pink	Summer	Sun	Poor, gritty soil.
Veronica pectinata rosea (Speedwell)	3	Pink	Summer	Sun	Ordinary garden soil.
Veronica repens	2	Deep blue	Summer	Sun	Ordinary garden soil.
Veronica rupestris	3t	Blue	Summer	Sun	Ordinary garden soil.
Viola gracilis	6	Rich violet	Spring	Partial shade	Ordinary garden soil.

a. Houstonia caerulea (Bluets) is regarded in Europe as one of the gems among rockery plants. This is found in endless numbers in American fields in early spring and may be dug up and transplanted to the rockery. *b.* Plants are so inexpensive that it is advisable to purchase them instead of raising from seed. *t.* Indicates plants are of a trailing habit and these should be planted where they can trail over the faces of the rocks.

Reports of the National War Garden Commission

Conservation Follows Production, to Win Next Year's Campaign Now

THE lighthouse is an aid to the commerce of the world; but this year the lighthouses of the United States are shedding their bright rays in other ways also. War gardens are growing around many of them, helping to send the light of democracy around the world. Along the Atlantic and the Pacific coasts they are doing their part. H. W. Rhodes, superintendent of lighthouses of the California district, reports as follows:

"At a number of the light stations in this district the keepers or assistant keepers have laid out large areas in war vegetable gardens. At Point Loma, Point Fermin, Santa Cruz, Crescent City and other places this has been done. At Santa Cruz Light Station authority was granted a postal employee, Thomas Place, to cultivate two acres of the reservation not already cultivated by the lighthouse keeper. Mr. Place planted these two acres in beans."

* * *

COMMUNITIES, organizations of all kinds, chambers of commerce, women's clubs, manufacturing concerns, business houses and individuals this year are not only helping to produce food. They are encouraging the conservation of as much as possible. In this work the drying process will be found a big factor, and it cannot be encouraged too strongly.

* * *

Two hundred American bluejackets were greeted with two familiar posters, "Sow the Seeds of Victory" by James Montgomery Flagg and "Can the Kaiser" by the Belgian soldier-artist, Paul Verrees, both issued by the National War Garden Commission, when they entered the Sociedad Anónima "La Blanca" at Buenos Aires, Argentina, when the U. S. S. *Newcastle* visited that port recently. The "jackies" were royally entertained by the Bonarenes, writes C. D. Middlebrook of the Society to President Charles Lathrop Pack of the Commission and the posters arrived just in time for display. "Down here we appreciate this class of propaganda," writes Mr. Middlebrook, "and we are in a position to exhibit the posters where they can be seen readily by the public. Practically every American home and sympathizer displays them. We will do our part in making this propaganda public."

* * *

THE Woman's Relief Society of Freedom, Utah, is doing a work which matches the town's name. In writing to the National War Garden Commission, Mrs. Martha A. Gee, the president, says: "We are a fruit-raising community and the canning books which you contributed will greatly help us in our efforts to conserve our fruits and vegetables and so assist the nation."

* * *

DUNKIRK, New York, has a newly established Thrift Kitchen, which will teach proper methods of community canning and dehydrating. The war garden work of the town has been very satisfactory and a school supervisor of gardening, as well as a supervisor of adults' gardens, have been added. Results, will be ten times greater than last year, Dr. William J. Sullivan writes to the National War Garden Commission.

THE fifty branch libraries of the Chicago Public Library distributed the window hangers bearing a spade and the words: "We Have a War Garden" which home "soldiers of the soil" all over the country displayed to show how they were helping to win the war with food.

* * *

A SPIRIT of coöperation between the United States and Canada is being fostered by the assistance which this country has given to the Dominion in its war garden campaign, according to a letter to the National War Garden Commission from Mrs. W. P. Hodges, president of the Garden Club of Notre Dame de Grâce. She thanks the Commission for the supply of garden and canning manuals and other literature which it furnished to help the home food production campaign in that city.

* * *

GARDENING was made one of the primary activities of school work in Cincinnati this year; and about fifty acres were planted in school gardens. Altogether the busy Ohio city boasted of more than 15,000 home gardeners. Roland W. Guss, director of the school gardening end of the campaign, reported most encouraging results.

* * *

THE Department of Horticulture, Ontario Agricultural College, Guelph, Canada, has been very active in encouraging the planting of war gardens and the conservation of surplus vegetables and fruits so grown. The authorities at that institution as well as many other food committees and organizations in the Dominion, were assisted in their work by garden, canning and drying booklets, posters, window hangers and other literature from the National War Garden Commission of Washington.

War Garden at Crescent City, California, Light Station, 75 by 92 feet. This is a splendid illustration of how neglected acres can be made productive

* * *

STELLA A. HARMAN, emergency home demonstration agent, North Vernon, Indiana, has charge of the canning clubs in her county. In her work she distributed a large number of canning and drying books sent by the National War Garden Commission of Washington.

* * *

J. H. RICHMOND, director of the War Garden Committee in Louisville, Ky., has seen large results there both in the home production as well as conservation of food as an outcome of the active garden campaign.

* * *

MISS CATHERINE S. EASTWOOD, of the Arlington, Mass., School has enrolled 209 girls in a canning class. They have been supplied with canning manuals and war garden window hangers by the National War Garden Commission of Washington.

MORE than 500 persons attended the canning and drying demonstrations which Miss Mathilde Hawkins, director of the School of Domestic Science, Y. W. C. A., held at New Haven in connection with the Home Economics Department of the New Haven Gas Light Company. Dr. Robert Scoville, State Food Administrator, highly praised the demonstrations.

* * *

OFFICIALS of the International Wheat Show and the eighth annual Wichita Fair and Exposition, to be held at Wichita, Kansas, Sept. 30 to Oct. 12, will enter the prize winner in their canning contest for a National Capitol Prize Certificate, accompanied by the book half-filled with thrift stamps, which the National War Garden Commission is offering to prize winners in canning contests throughout the country.

* * *

JOHN W. STROHM, registrar of deeds, Clinton County, Clinton, Iowa, combined pleasure and patriotism in a recent motor trip when he distributed 2,000 canning and drying manuals of the National War Garden Commission.

* * *

ROSLYN, L. I., has a community canning kitchen under the direction of the Patriotic Thrift League, of which Mrs. Ernest C. Brower is chairman.

* * *

SIX thousand war gardeners in Norfolk, Va., are being mobilized in the Virginia canning campaign. H. N. Castle, secretary of the Commission on Beautifying the City, has, at his request, been furnished with 300 canning and drying manuals by the Nationl War Garden Commission, and every gardener will become a canner.

* * *

"TURN on the steam, boys." The employees in the machine shop of the Carolina and North Western Railway Company at Hickory, N. C., turned the cylinder of an old engine into a canning plant. They connected the cylinder with the shop steam boiler, put on a steam gauge, pop valve and drain cock; and arranged three shelves of heavy wire screen in the cylinder to hold the jars and cans of vegetables. They did their war garden canning work after regular hours.

* * *

THE Miami Conservancy District, which has at each of the sites of the retarding basins a small town which will house four or five hundred people, has provided gardens for each family living at the camp site. At the request of C. W. Porter-Shirley, camp inspector, 100 canning and gardening manuals have been contributed to these war gardeners by the National War Garden Commission of Washington.

* * *

EMPLOYEES at the various Du Pont plants are competing for the $10,000 in thrift stamp prizes and National Capitol Prize Certificates which have been offered by the National War Garden Commission for the best canned vegetables grown in war gardens. Three thousand copies of the Commission's canning and drying booklets were distributed among the company's workers at Wilmington, Del.; Carney's Point, Haskell, Parlin and Paulsboro, N. J.; Nashville, Tenn.; and Williamsburg, Va.

Mohican Supremacy

WHY WE LEAD

BECAUSE of the study of, and devotion to, the Peony alone,—an undivided allegiance. It's significant.

BECAUSE our system of cultivation is unmatched in this country. Every root given individual and intensive culture,—as in a private garden. Ask those who have been here.

BECAUSE we do not send out a root until—regardless of its age—it has bloomed satisfactorily here the spring prior to its going to you. Some of the plants we deliver are three and four years old—with no advance in price.

BECAUSE there are not 2000,—nor 1000,—nor 500 distinct varieties; but scarcely more than 100; and we have "spiked the guns" of the duplicates at high prices.

There are lots of POOR Peonies; why not have the benefit of really expert advice. Our fame is nationwide. 'Most everybody everywhere knows of the ABSOLUTE SUPREMACY of our Peonies. Do you? One of the REASONS is because

WE GROW PEONIES —NOTHING ELSE

Suspicions of the other reasons will be awakened by our catalogue. Instant confirmation of them if you could visit our grounds and see the plants growing—*the stock we send to you.* Ask those who have been here.

"OUR REPUTATION HAS BEEN BUILT ON THE QUALITY OF OUR STOCK"

DISTINCTIVE CATALOGUE NOW READY

Mohican Peony Gardens, BOX 300 Sinking Spring, Penn'a.

Have You an Iris Garden all Your Own?

Is there a little nook in your garden where you can rest and "chum" with the glorious flowers named after the Goddess of the Rainbow? Truly, every color of the rainbow may be found in the hardy Iris, or Fleur de Lis a flower whose fascinating beauty must have been meant to bring peace and rest to a troubled world. Learn to know Irises at their best by planting liberally of

Childs' Named "Fleur de Lis" or Garden Iris

Like glowing velvet and scintillating precious jewels, Iris, in their season, eclipse in beauty every other flower in the hardy border. To enable you to know Iris as we love them, we offer a test collection of

20 finest named sorts, 1 strong root each postpaid for $1.00
6 of each sort (120 roots in all) for $5.00 postpaid

Plan and Plant Your 1919 Flower Garden Now!

This is the time of the year to start your "old-fashioned" hardy garden and bulb beds that will be a source of pleasure and satisfaction next Spring. *Now* is the time to transplant Iris, Phlox, Peonies and all other plants that make an extra-early growth in the Spring. Our stocks are unexcelled, at prices within everybody's reach. We ship anywhere—there are satisfied Childs' customers in all "four corners of the earth." Write *to-day* for *Free Catalogue* of all Hardy Plants, Winter Blooming Plants, Dutch and French Bulbs, Seeds for Fall Sowing, etc.

JOHN LEWIS CHILDS, Inc., Floral Park, N. Y.

NOW ***Is the Time to Begin Planting Evergreens***

and gain time by so doing. We have about everything adapted to this latitude. Send for our HANDBOOK-CATALOGUE if you please,

Mailed Free for the asking

September Begin planting PERENNIALS and continue through OCTOBER. We have a large variety of strong field-grown plants.

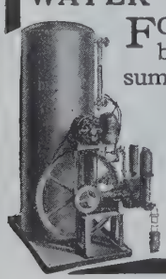
October Begin planting deciduous TREES and SHRUBS and keep at it until the freezing of the ground stops you.

FALL PLANTING GAINS TIME for the plants and relieves, by so much, the rush of the Spring work.

The Bay State Nurseries

678 Adams Street
North Abington, Mass.

Deming "Marvel"
WATER SUPPLY SYSTEM



FOR medium-sized suburban or country homes or summer cottages. Operates by electricity (cost about one cent a day). Practically self-operating.

Let the "thousand-and-one" Deming hand and power pumps solve your water problems.

The Deming Co., 111 Depot St., Salem, Ohio

AMERICAN-GROWN EVERGREENS
For September Planting

Our ability to supply plants of the highest quality is not curtailed by the stoppage of foreign shipments. Buy nursery stock grown at Andorra.

Andorra Nurseries
Wm. Warner Harper, Prop.
"Suggestions for Effective Planting" on request.
Box 60 Chestnut Hill Phila., Penna.

Close Planting in Small Gardens

VARIETY and continuous yield are essential to the success of the small kitchen garden. To achieve this careful planning is necessary, and careful cultivation, and if the greatest yield possible to the area is to be had there must be close planting. Plants in the little garden that is cultivated by hand will flourish when growing much closer together than the distances designated in the directions given in the books, if the proper tools are used in cultivation. These, of course, have to be small, and I know of none better adapted for the purpose than the Eureka weeder, except a modification of it that is made by removing its short handle and replacing it with a six-foot rake handle. This re-made tool will enable you to do nearly all the work that can be done with the original, and to do it in a more comfortable standing, instead of stooping, position.

The books generally tell us to thin salsify to six inches in the row, and to have the rows twelve to eighteen inches apart. I have grown as large and fine salsify as I ever saw with the plants three inches apart in the row, and the rows nine inches apart. In planting thus closely it is well to have the rows in groups of five, and then leave an eighteen inch alley in which to walk when cultivating. With a long or short-handled Eureka weeder you can move along the alley, cultivating in it, as well as up to the middle row of the planting; and the same process on the other side of the five rows finishes the job. Or, still better, if the rows are not more than sixteen feet long, you can stand at the end of them, and with a little stretching reach to the middle of the planting, and dragging the tool toward you between the rows, cultivate half of it first from one end and then from the other without stepping into the bed. The weeder is about the correct width to pass between nine inch rows, and if the time chosen is just long enough after a rain for the surface to have drained properly a good and sufficient mulch can be made with one motion of the tool. Onions may be planted and cultivated in the same way, except that where a small variety—such as Australian Brown, which is early and an excellent keeper, but not mild—is used, two inches apart in the row is enough.

Another thing for the small gardener to consider in his plans, where one row is not sufficiently long for a separate planting, is the double row. Here again is where the nine-inch distance between the rows is generally desirable, and where the long-handled weeder can be advantageously used until the growth of the plants prevents cultivation between them. The stoppage, however, will do no harm, as the ground is shaded, and cultivation may be continued on the two outsides of the double row. Peas are generally planted in this way, and many other things might just as well be. Drop bush beans (except limas) three inches apart in two rows nine inches apart, and you will raise about double the crop on little more than half the space a single row would occupy. The plants get the room they need by leaning outward. The same plan works admirably with half-long carrots. Three inches apart in the row is enough even for the broad-shouldered Chantenay and Oxheart. Three inches is likewise enough for turnip-shaped beets, and even for the white varieties of kohlrabi, in spite of their rather spreading top growth.

The double-row system can also be used

(*Continued on page 62*)

Keeping the Civilian Fit

An Advertisement by

George H. Peterson

OUR Government is sparing neither pains nor expense, and rightly so, in providing entertainment and relaxation for the soldier, to the end that his mind may be diverted from the task before him and so that he may not become "stale." And while the world's freedom from tyranny cannot be won without the soldier, he, important as he is in the destiny of mankind to-day, cannot fight without the backing and support of the man and woman who stay behind and fight the battle at home.

In the excitement of preparation and of battle, the soldier, although his life may be at stake, does not begin to worry a tithe as much as the father, mother, wife, sister or sweetheart left at home. And so it seems fitting to me that because of this inseparable worry, combined with ever-increasing privations, and the fact that without the best and continued effort of the civilian the war could not long be carried on, the question of his or her relaxation and diversion should be given serious thought—that such relaxation should be increased rather than diminished.

There are, it is true, many things of which we should deny ourselves in whole or in part. We must eat less meat, wheat and sugar, so that our soldiers may have an abundance; so that our Allies, who for four years have been holding back the hordes who would destroy the freedom of mankind, may not suffer too severely.

We must make a suit of clothes, a pair of shoes, last longer; so that the fighter of our battles will have wool and leather enough to clothe and shod him in his strenuous duties under great exposure. There are luxuries and non-essentials which benefit no one else but the buyer (if even they do him) which may well be dispensed with altogether for the time being.

But what about flowers? Are they a luxury—a non-essential?

Let us see.

I call your attention to the picture and its caption on page three.* Do you suppose for a moment that these flowers were all used selfishly? Can you compass the possibilities of this one day's cutting in cheering the sick, the grieved, or the soul aweary with life's struggles?

And what of the giver? Has she lost or has she gained?

Has she not gained most of all?

Think it over.

Figure it out as you may, the fact remains that no other relaxation, diversion—call it what you will—will prove of such real benefit as the cultivation of flowers, a benefit not only to the grower, but to many less fortunate fellow creatures.

With this thought in mind, it has been especially gratifying this year to learn of quite a number of cases where our Peonies were so useful in Red Cross and similar work. As a lover of this flower, even more than as a professional grower, it has been likewise gratifying to observe the liberal use of the Peony on Decoration or Memorial Day of this year—for which purpose it stands pre-eminent among flowers. And who can foresee the limit of its usefulness in this respect? The Decoration Day of the future is to hold a new meaning to many, if not to most of us.

This war will, I feel confident, renew the interest in flowers and sooner or later increase the demand for them. Many of us, I am sure, feel very much as did a woman customer who feelingly wrote me this spring as follows:

"I can do without other things, but flowers I *must* have—now more than ever. They are a great consolation to me."

The conclusion, and the most interesting part of the above article will be found in my new 1918 Peony Catalogue—mailed on request.

George H. Peterson

Rose and Peony Specialist

Box 50
Fair Lawn, N. J.

A Portion of Our Exhibit at Boston Peony Show, June 15-16, 1918

We Aim to Excel in Quality Peony Production

The above display was pronounced by Peony experts and the public *THE* Display (quality considered) of the show. A lady, (a stranger to us) told us "after seeing yours I ignored all the others. *Such blooms.*"

Special Offer:—

To acquaint you with our "pets" we will send
12 Choice Iris for **$1.00**
12 Select Peonies for **$2.00**

Not subject to discount, except as mentioned opposite.
We have Peonies valued from 25c. to $25.00 each. Our Iris are worth from 15c. to $1.00 each.

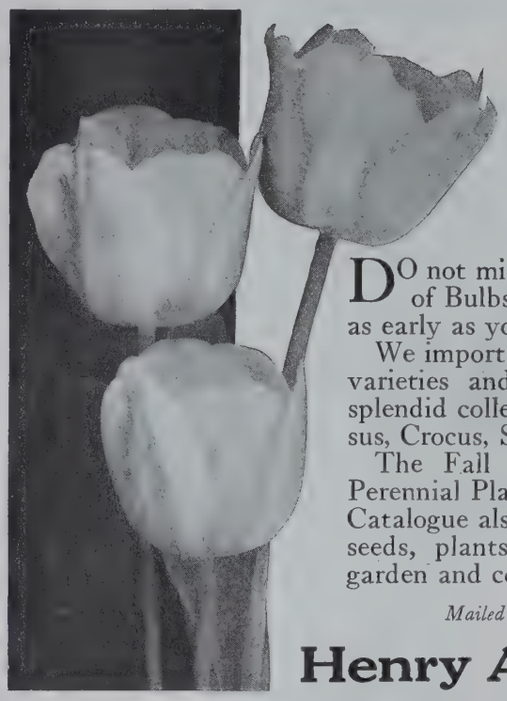
Drop us a postal TO-DAY, requesting our modest little catalogue, which you'll find full of facts about Peonies, Iris, etc.

GEORGE N. SMITH
Wellesley Hills Massachusetts

Special Discount:—

To Readers of Garden Magazine only, who order before September 25th, we will allow a special discount of 15% provided cash is sent with orders, *and* special reference is made to this advertisement.

Remember the Date:—September 25th.



Dreer's Reliable Spring-Blooming Bulbs

DO not miss the joy of having a bed or border of Bulbs next Spring. Plant them this Fall as early as you can and success is certain.

We import the very highest grades of the finest varieties and offer in our Autumn Catalogue splendid collections of Hyacinths, Tulips, Narcissus, Crocus, Snowdrops, etc., etc.

The Fall is also the time to set out Hardy Perennial Plants, Vines, Shrubs, etc. Our Autumn Catalogue also gives a complete list of seasonable seeds, plants and bulbs for out-doors, window garden and conservatory.

Mailed free to anyone mentioning this magazine

Henry A. Dreer 714-16 Chestnut St. Philadelphia, Pa.

Brand's "America's Best" Peonies

By a constant process of elimination, only the most unique, possessing every point of excellence in an exceptional degree, survive. Then we know them to be right. We do this to save you disappointment. If you want true Brand Peonies, why not order direct from Brand? If they come from Brand, they must be good.

If you want something exclusive in white, try Elizabeth Barrett Browning, $25.00.
If something rare, try Frances Willard, $15.00.
If something choice, try Florence Nightingale, $5.00.
Three for $35.50.

If you wish something exclusive in pink, try Martha Bullock, $25.00.
If something rare, Archie Brand, $15.00.
If something choice, Chestine Gowdy, $5.00.
Three for $37.75.

If you wish something exclusive in red, try Mary Brand, $15.00.
If something rare, by some experts considered superior to Mary Brand, try Longfellow, $10.00.
If something choice, try H. F. Reddick, $5.00.
Three for $23.75.

For other exclusive, rare and choice varieties, write, today, for descriptive catalogue and price list.

BRAND PEONY COMPANY
540 Lumber Exchange Bldg. Minneapolis, Minn.

Moss Aztec Pottery

Offers a wide choice of objects, from simple fern dishes and bud vases to impressive jardinieres and plant stands. Its predominating characteristic is refined elegance in designs and colors. A post card request will bring you the "Moss Aztec" catalogue and name of nearest dealer.

DISTINCTIVE FERN PAN $1.50

is square with separate liners measuring 7x7 inches by 4 inches deep. Order as No. 495.

PETERS & REED POTTERY COMPANY
So. Zanesville, O.

PEONIES

Fifteen fine named Peonies for $2.50, or 25 for $5.00 all different and truly labeled, a chance to obtain a fine collection at half price, comprising such varieties as Festiva Maxima, Delachei, Achillea, Lady L. Bramwell, Couronne d'Or, Mad. Calot, and various other fine sorts. With any order of above for $5.00 I will include one plant of Baroness Shroeder, free. I have the largest stock in America of Lady Alexander Duff (absolutely true) and many other fine varieties. Send for catalogue.

W. L. GUMM, Peony Specialist
Remington, Indiana

Native Plants from California will thrive in Eastern Gardens

MANY beautiful plants which are natives of the Pacific Coast may readily be transplanted to gardens in other parts of the country, carrying with them much of California's sunshine and cheer. Brodiaes, Calochorti Erythroniums, are a trio from among the most lovely plants.

At the Terraces I grow hardy plants which are familiar to all gardeners; yet Phlox, Iris, Evening Primroses, Columbines, Larkspurs, with many others, take to themselves much of the vigor imparted by our soil and climate.

My New Catalogue will be sent free to all who ask for it. Hardy plants, Californian Plants and Bulbs, Lilies, Ferns, and Dutch Bulbs, are described in a way that is "different." Send to-day for a copy.

Carl Purdy, Box A, Ukiah, Calif.

(*Concluded from page 60*)

for head lettuce and endive, but the plants should be "staggered"—that is, the plants in one row should be opposite the spaces in the other row—nine inches apart. This plan of staggering is also desirable for double rows of celery, as it makes the work of banking much easier, though it is somewhat tedious at best. I have had good results with peppers at ten inches and eggplants at fifteen inches apart in the row—single rows, of course; and for several years I have been planting Ponderosa tomatoes two feet apart in the row. This necessitates pruning and training the vines. A stake about six feet long and an inch square should be driven six inches away on each side of each plant, which is pruned to two stems and tied up, one stem to each stake. Until late August the vines must be suckered—that is the shoots that start at the axils removed—and tied about once a week. It takes three or four ties (pieces of two-ply jute twine about fourteen inches long are excellent for the purpose) to each stake, or perhaps an average of seven to a plant.

It must be borne in mind, however, that the increased yield from such close planting as is here suggested must be paid for. In the first place, it necessitates frequent and clean cultivation so that the weeds shall not take from the soil anything that the vegetable plants should have; and, second, it makes a terrific draft on the fertility of the soil that must be replaced. This is best done by spreading manure at least two inches deep all over the garden, after it is cleared in the fall, and turning it under, leaving the ground as rough as possible for the greater action of the weather on it. At that season manure of any degree of freshness will serve the purpose, as it will have lost its fire before the next planting time. Thus the fresher manure will cost less and supply the soil with more of the original chemicals than the well-rotted manure that it is necessary to use if it is turned under in the spring. Of course, a closely planted garden will draw more moisture from the soil than one that is more spread out, and irrigation is desirable if possible; but a cleanly kept, closely planted garden will require no more moisture than a weedy one of the other kind, so things are about even there.

HORTULUS.

Asparagus for the Home Table

IF YOU are marketing your asparagus it is necessary to let the stalks grow to a considerable length, not only because it is thus more convenient for bunching, but because it looks like more, and the marketer wants to get his money's worth. But it isn't really more, as a considerable part of the lower end of the stalk is tough and frequently bitter.

When cutting asparagus for your own table it is best to take it while the growth is all tender. From five to seven inches is long enough. This will really give you asparagus tips, which are wholly edible and which command high prices in the comparatively few places where they are sold.

This plan avoids the necessity of much banking—indeed, if the roots are five or six inches below the level (and this is enough if you want an early start in the spring) no banking at all is required; and every stalk cut thus enables the root to turn more of its stored up vitality to the production of new shoots.

Plan Your Hardy Garden NOW

Before the Fall Rush Starts

We shall be glad to give your problem our personal attention through our staff of experts, whether you plan a little plot in your backyard or contemplate laying out an extensive estate.

Special War-Time Offer

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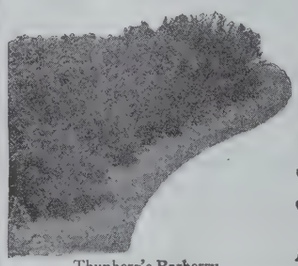

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COMING EVENTS — CLUB & SOCIETY NEWS

Meetings and Lectures in September

(Following dates are meetings unless otherwise specified)

1. Mass. Hort. Soc., Boston, Mass. Exhibition of the Products of Children's Gardens.
2. Garden Club, Larchmont, N.Y.
Dahlia Show, Hort. Soc., New Bedford, Mass.
3. Garden Club, Pleasantville, N. Y.
5. Garden Club, Marshfield, Mass.
6. Hort. Soc., Pasadena, Cal.
7. Gardeners' & Foremen's Ass'n, Lake Geneva, Wis.
9. New York Florists' Club, Grand Opera House Bldg., New York City.
Garden Club, New Rochelle, N. Y.
Florists' Ass'n., Rochester, N. Y.
Park Garden Club, Flushing, N. Y.
10. Garden Club of Ridgefield, Conn.
11. Flora Club, Valdosta, Ga.
Garden Club, Short Hills, N. J.
Nassau Co. Hort. Soc., Glen Cove, L.I.
Hort. Soc., Lenox, Mass.
12-13. R. I. Hort. Soc. Exhibition, Providence, R. I.
13. Horticultural Soc., Westchester, N. Y., and Fairfield Conn.
Conn. Hort. Soc., Hartford, Conn.
14. N. Y. Hort. Soc., Dobbs Ferry, N. Y.
14-15. American Dahlia Society, Annual Exhibition, Boston, Mass.
Mass. Hor. Soc. Boston, Mass. Dahlia, Fruit and Vegetable Exhibition.
17. Gardeners' & Florists' Club, Horticultural Hall, Boston, Mass.
17-18. Penn. Hort. Society, Ardmore, Pa., Dahlia Exhibition.
18. R. I. Hort. Soc., Providence, R. I.
Hort. Soc., Tarrytown, N. Y.
19. Salisbury Garden Club, Conn. Lecture: Planting for Winter Effect.
Garden Club, Marshfield, Mass.
20. Dahlia Soc. of California, Palace Hotel, San Francisco.
Hort. Soc., Pasadena, Cal.
23. Park Garden Club, Flushing, N. Y.
24. Garden Club of Ridgefield, Conn.
24-26. American Institute of City of New York and the American Dahlia Soc., Exhibition of Dahlias, Engineering Soc. Bldg., New York City.
25. Garden Club, Short Hills, N. J.
26. Garden Club of Lawrence, L. I., Exhibition Dahlias, Fruits and Vegetables.
27. Conn. Horticultural Society, Hartford, Conn.
28. Hort. Soc., Dobbs Ferry, N. Y.

Talking once again about a national flower that shall stand as a seal and an emblem of these United States: the Laurel, the Golden Rod and the Columbine each have their beauties and their merits. But they also have their limitations, generally territorial. Is there any other one plant that grows that is more decidedly representative of America in its universal service than corn? It is mated to the country; typically American. Corn is King! Corn grows everywhere in America and its tassel is not without beauty. Why not let corn be the national flower emblem?

Points for Judging Vegetables

JUDGING in competition is not easy nor is it satisfactory to the contestants unless a commonly accepted basis of standards is understood. Hence these scales of points are given. They should be read in conection with the article on page 49

Potatoes should be free from pits, warts and excrescences, of fresh appearance, smooth, and of a bright color. Points for potatoes might very fairly be allotted as follows: size 30, form 30, smoothness 30, quality 10. To those who could carry the scoring a little farther I would suggest these points: size 20, general condition 15, labeling and correct varietal character 25, freedom from blemish 20, character of skin and flesh 20.

Beets. Next to potatoes beets are shown in the greatest numbers among root crops. On two occasions last fall I had occasion to judge two classes of 6 specimens which had respectively 95 and 101 entries; these were children's products, all of splendid quality and not at all easy to judge. Exhibition beets of the turnip rooted type should be from 3 to 3½ inches in diameter, the flesh of deep blood-red color and the roots have a bright fresh appearance, of uniform size, smooth, and free from side shoots. Color should be allowed 25 points; size and uniformity 30, type and labeling 25, and smoothness and freedom from side roots 20.

Carrot if of the intermediate type, should be not less than 6 inches long, and 2 inches in diameter at the thickest part. Such varieties as Long Orange should be 10 inches or more in length and 2½ inches thick. The color should in all cases, be deep orange; fresh appearance, smoothness, uniformity and correct naming must all be considered. A fair way to score carrots would be: general form 40, color 20, size 20, smoothness 10, varietal character and labeling 10.

Parsnips are of two principal types, Long Smooth and Hollow Crown, the former should not be less than 16 inches long and the Hollow Crown 12 inches with a minimum diameter at thickest part of 2½ inches. Freedom from rust on the skin is very important as well as smoothness, freedom from side roots. The general color

(Continued on page 66)

HICKS' Garden Chat

A FAMOUS fruit-grower remarked to me the other day: "It's come to the point where you can't have good fruit unless you grow your own." If we want fresh, juicy, flavory fruit, we must realize that market fruit has to be shipped long distances—so it can't be left to ripen on the tree, as Nature intended. You can't beat Nature's game! Plant fruit trees and bushes and vines in your own yard, even if it's only a 50-ft. lot (we'll show you that you have lots of room, without depriving yourself of flowers or vegetables) and the fruit you serve will make you the envy of your neighbors and friends. Especially if you plant Hicks' guaranteed fruits—they can't go wrong! Ask for our special groups for $5, $10, and up—we ship a whole "Toy Orchard," 108 trees and vines, for $35. Tell us the size of your grounds, and we'll tell you just about what you can do to start growing your own fruit.

THIS is strawberry-time—as you probably know—but perhaps you have read so many instructions about strawberry planting that you have fought shy of even trying it. But all you have to remember is to keep the ground stirred 3 in. deep, and to throw some hay or mulch over the plants in winter. There's the whole secret. We'll assume the risk, so go ahead! Plant some of our choice plants now, and we guarantee that next summer you'll taste some of the handsomest, juiciest berries you ever saw. 60 c. brings you 10 plants, $6 a hundred. How many shall we send you?

"THE city," to quote a prominent architect, "is no place to bring up a family." Perhaps you moved to the country for just that reason,—but are you sure your kiddies are getting the full benefit of country life? Do they have to play indoors when it's too sunny—because your lawn isn't shady enough? We can make your home grounds a Paradise for the kiddies—full of cosy corners and nooks to play in—cool and inviting in hot weather—cosy and warm in bleak autumn or wintry days. We can do it cheaply, too—it's more a matter of experience than money. Our book, "Home Landscapes," is full of suggestions, sketches, prices—send for it, it's free.

AND don't forget yourself while you think of the kiddies. The mother needs quiet, shady, secluded corners to rest in—yes, even to work in. Why not do the chores in a "sylvan nook" in the backyard—and entertain the knitting circle or the Red Cross party within the shelter and privacy of an "evergreen cove?" It's less trouble and ever so much nicer. And the tired business man won't be so tired if he can come home to an outdoor dining room or reading nook in these daylight-saving evenings. It's a simple, inexpensive prescription for health and efficiency—and perhaps the best. Our book, "Home Landscapes," on page 12, sketches one of these "evergreen shelters" or "walls of green"—send for it, and picture your comfort in such an outdoor living room.

THE same fascinating book (it's free, remember—a postcard will fetch it) will tell you, on page 31, how to turn the usual dull drab shrubbery of September and October into a vivid tapestry of blue, red, coral, and purple. Some of these unusual shrubs yield edible berries, from which delicious drinks or appetizing jam can be made. Be venturesome—try some new things under Hicks' guidance—you won't be sorry!

WHILE seeking new things, don't lose interest in the old—the plants already under your care. Above all, give them water. If trees and flowers could talk, how often you'd hear them begging for a drink! They'll do their sweetest and loveliest for you if you'll only give them plenty to drink—yes, even when it rains!

Henry Hicks.

H

H. HICKS & SON "Sixty Years of Knowing How" WESTBURY, L. I. (Phone 68)

Plant an English Walnut Tree

FRANQUETTE

If you have room plant a grove of them, for the cultivation of the English Walnut in the north is not only one of the newest, but one of the most rapid growing industries in the United States. The early planter is bound to reap a golden harvest.

Write us for details.

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Look at this record of **The Thompson Orchard, near Rochester, 228 trees, on five acres, the largest commercial bearing orchard in the East, producing in one season *260 bushels Walnuts, 32 lbs. to the bushel, sold at 25c. per pound.*** This orchard has been in bearing many years—with occasional temperatures 20 degrees below zero.

The Isere Valley—the valuable walnut region of France, has been practically wiped out. Judge for yourself the prices we will be paying for English Walnuts in a short time.

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"Northern Grown" means specially bred to severe changes of climate and low temperatures, strong, vigorous, husky young trees, able to offer unyielding resistance to severest weather.

You ought to try a few trees, or if you have room, a grove of them. If you wish to get Farthest north grown trees, write to

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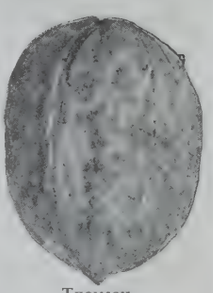

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THE Hodgson way eliminates all the bother and trouble that usually come with the building of a small house because the house is built, finished and painted in our factory and shipped to you in sections. It can be assembled easily and quickly by inexperienced men. No figuring over blue prints. No ruined lawn. No dirt or noise.

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By paying 25% of the cost now we will hold the house until you need it. At the same time you save money and insure prompt delivery.

Your first move is to send for a catalog. Do it today.

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We have one of the largest collections in America. Many of them can be obtained from no other source. Plant Bearded Iris now, and have a lovely border next spring. We have them in colors ranging from cream and snow white to almost black, passing through all the intermediate shades of pale blue and delicate lavender, violet and purple, crimson and rose, copper, bronze and purest gold, in wonderful and lovely combinations. They are graceful in form, exquisite in texture. They are perfectly hardy and require little or no care.

For $1.65 we will send you this fine collection, postpaid, the actual value of which is $2.25.

MME. CHEREAU, White bordered blue
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PALLIDA DALMATICA, Silvery lavender, immense flowers
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Our new catalogue describes nearly five hundred varieties. Write for copy.

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(The House of Quality and Moderate Prices)

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An excellent collection of 12 Peonies covering season and color well, fine sized roots that are ready for business for $5.00 by parcel post. Here they are:

Baroness Schroeder, Mons. J. Elie, La Tulipe, La Perle, Mad. Calot, Umb. Rosea, Edulis, Superba, Festiva Maxima, Couronne d'Or, Felix Crousse, Rubra Superba, Dorchester.

We may be able to substitute other fine varieties in this collection if desirable. Send for our select list of Peonies and Iris and tell us your wants. See Iris offer in Aug. issue.

If ordered by express we will send a little larger roots and add two extras to the above 12.

We will furnish the 42 standard varieties mentioned by Paul V. D. Hoysrad on page 14 in the Aug. Garden for $25.00. Any 25 of them for $18.00. Don't miss this opportunity.

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Hicks Evergreens planted now will give immediate beauty and refinement to your home. These attractive evergreens may be transplanted this year at small cost. They screen objectionable views and add a touch of country atmosphere to your place.

Don't delay! Save 10 years by planting *now*.

There is a size and shape for every purpose—from spruce boundary hedges 4 to 6 feet high to evergreen windbreaks 10 to 15 feet. Order without risk. We ship up to 1000 miles and *guarantee satisfactory growth*.

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Write for our Fall List to-day

Heatherhome Seed and Nursery Co.
(Formerly the Knight and Struck Co.)
258 Fifth Avenue New York City

(Concluded from page 64)

should be light cream. Awarded points as follows: size 30, color 30, general form 20, varietal character, labeling 20. Roots which are "corky" or somewhat hollow must be scored down.

Turnips of the flat type should be from 3½ to 4½ inches in diameter; if they are of the Purple-top type the top must be bright purple; if White, color should be cream white, of fresh appearance. Freedom from woody or faulty spots in the fibre, smooth appearance, freedom from side roots and uniformity are important. A fair scaling would be: size 30, color 20, general form 20, smoothness and cleanliness of skin 20, character and labeling 10.

Onions. Danvers Yellow type not less than 3 inches in diameter of dark straw color, small neck and very firm. Such red varieties as Red Globe and Wethersfield should average 3–3½ inches in diameter and be of a dark red color. White Silverskin of 2½–3 inches across is of correct size and color ought to be creamish white. Larger varieties such as Prizetaker, Ailsa Craig, and Gigantic Gibraltar may run from 4 inches upward in diameter. Firmness of flesh is very important in onions as is smallness of neck. Many of the finest looking specimens on close examination are often found to have soft or bleeding necks and judges should always press their fingers on the neck to locate such specimens. Points for onions may be: size 30, firmness and small neck 25, color 20, general form 15, varietal character and labeling 10.

Cabbages of the Drumhead type should have a head 12 to 16 inches in diameter, be bright green in color and very firm; with the Ballhead type heads should be 2–3 inches smaller. It is not possible to judge the solidity of cabbages by merely looking at them or even feeling them. A better and safer method is to pick up each one separately. Cabbages frequently split after being cut and these cracks or disfigurements usually occur on the most solid heads. A fair way to score cabbage would be: size 25, form 25, color 15, firmness 25, varietal character and labeling 10. With Savoy cabbages the head, independent of the leaves, should not be less than 8 inches in diameter and the fresh appearance and curliness of the leaves are important. Scoring might be, size 25, form 20, freshness and curliness of leaves 25, firmness 20, varietal character and labeling 10.

Cauliflowers must have closeness of flower, a color as near white as possible and so long as the specimens are uniform the greater the breadth of flower the better. Size may be allotted 40 points, color 30, closeness of flower and freshness 20, and varietal character and labeling 10.

Tomatoes are always shown in great numbers and need very careful judging, as it does not do to be carried away by a smooth upper surface; the bottoms of the fruits must always be examined too. When this is done it often completely changes the first snap judgment. On the upper surface it is important to have an even ripeness and freedom from all specks and blemishes, while below cracks are to be looked for. Comparatively few dishes are free from cracks or spots unless the weather has been unusually warm and dry for some days prior to the staging of the fruits. Tomatoes for exhibition should be 2½–3½ inches in diameter, bright red, purplish pink, or yellow according to variety, very firm and free from cracks and other blemishes. A fair way to allot points would be varietal character 25, freedom from cracks and other blemishes 20, size 15, solidity of flesh 15, evenness of color 10, labeling 10.

Peppers of such varieties as Bull Nose, Sweet Mountain and Ruby King should not be less than 2½ inches in diameter, deep green in color, fresh and firm, also as straight and symmetrical as possible. In a close competition, the advantage should be given to perfectly green specimens over such as show a little red coloring even though the latter may average somewhat large in size. Points: Color—deep green—25, size 30, general form 15, firmness and freshness 20, varietal character and labeling 10.

Sweet corn is an important vegetable. Quality indicating sweetness, and fresh appearance are prime factors in judging sweet corn; also stripping the cobs to see if they are filled to the tips. Cobs which are at all mixed in color through cross fertilization of yellow and white varieties, even though of larger size than others should be placed below them when making awards. Length of cob according to variety, White Crosby not less than 6 inches long, and large varieties such as Stowell's Evergreen 10 inches. For quality, sweetness and appearance 40 points should be allotted, for size 25, color 15, form 10, varietal character and labeling 10.

Squashes of the Hubbard type which is the most popular winter variety should weigh 10–20 pounds, the shells hard so that the point of a knife will not enter without pressure being used, color of flesh orange yellow. Points: weight 20, color—deep green or bronze—according to type—20, quality, hardness of shell 20, firm and freedom from defects 30, varietal character and labeling 10. Hardness of shell should count with all squashes except such summer varieties as vegetable marrow and crooknecks; with these a *soft* shell must be recognized in preference to a hard one, no matter how large the latter may be.

Lettuces of the popular Tennis Ball type shall be not less than 10 inches in diameter from outer leaf to outer leaf, of fresh appearance and with solid heart. It is important to examine the centres closely for signs of decay when competition is close. Allow for size 50 points, quality, hardness and diameter of head 20, freshness and general form 20, varietal character and labeling 10.

Cucumbers of White Spine type and hybrids between this variety and the English frame varieties should be straight 6–10 inches long according to sort, dark green color throughout except for some whitish streaks at the bottom end; diameter should average 2 inches. Color should be allowed 25 points, size 20, quality, fresh appearance and freedom from defects 25, general form 20, varietal character and labeling 10.

String beans whether green or wax, should be as straight as possible, free from specks or rust, 5–8 inches in length according to variety, quite smooth and free from appearance of seeds, and brittle; in order to properly judge them it is best to snap one or two beans in each plate and note their brittleness and freedom from strings. A fair scale for string beans is size (according to variety) 25, form—straightness and freedom from defects, 25, quality, brittleness and freedom from strings 30, color 10, varietal character and labeling 10.

Shell beans should be allotted 30 for size, 20 for freshness, 20 for color of beans, 20 for general form and freedom from defects, 10 for varietal character and labeling.

Celery is not in the best of condition in early fall but some sorts such as Paris Golden and White Plume are available. All stalks should be pressed to detect any pithy or hollow ones, any signs of this defect will at once throw down an exhibit no matter how well bleached and handsome it may be. Freedom from rust is also very important. Celery bleached by means of boards averages cleaner than plants planked up with earth, although the latter will probably be superior in flavor. Color should be allowed 35 points (stalks of White Plume should be nearly white and foliage splashed with white, in Paris Golden they should be of golden color) size 30, quality (firmness and brittleness) 25, varietal character and labeling 10.

Traxler's Collection of Fragrant Peonies

This collection contains the choicest of Mr. Brand's "America's Best," all of the world's best, and nothing but the best. Nothing but fragrant varieties and only the best of these.

Elizabeth Barrett Browning, choicest white (regular size, 3 to 5 eyes) $25.00. Small 1-2, $14.25.
Lady Alexander Duff, tinted white, $25.00. Small, $14.25.
Martha Bullock, choicest pink, $25.00. Small, $14.75.
Longfellow, choicest bright red, $10.00. Small, $7.75.
Archie Brand, best rose scented pink, $10.00. Small, $7.75.
Phoebe Cary, best fragrant late pink, $10.00.
Richard Carvel, most fragrant early crimson, $5.00.
Moses Hull, most fragrant pink and cream, $5.00.
Henry Avery, most fragrant pinkish white and yellow, $10.00.
Judge Berry, best early fragrant shell pink, $10.00.

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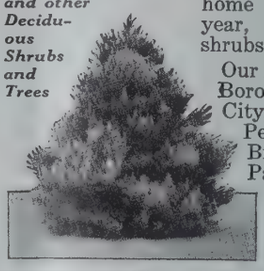

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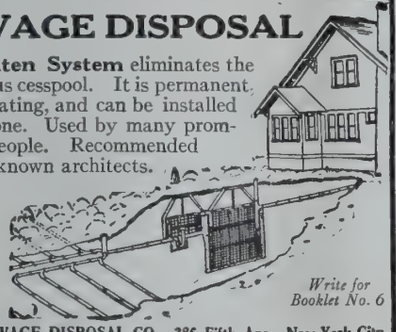

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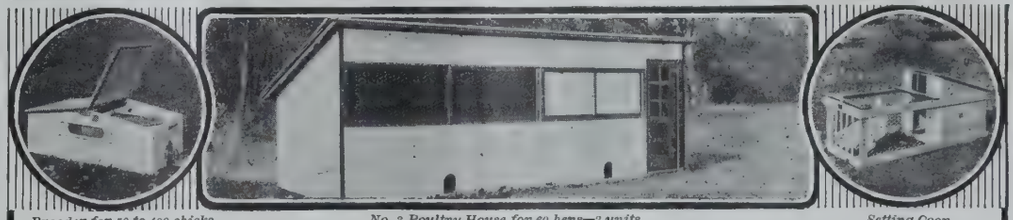

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Manual of Fall Planting

GARDEN MAGAZINE

October
1918

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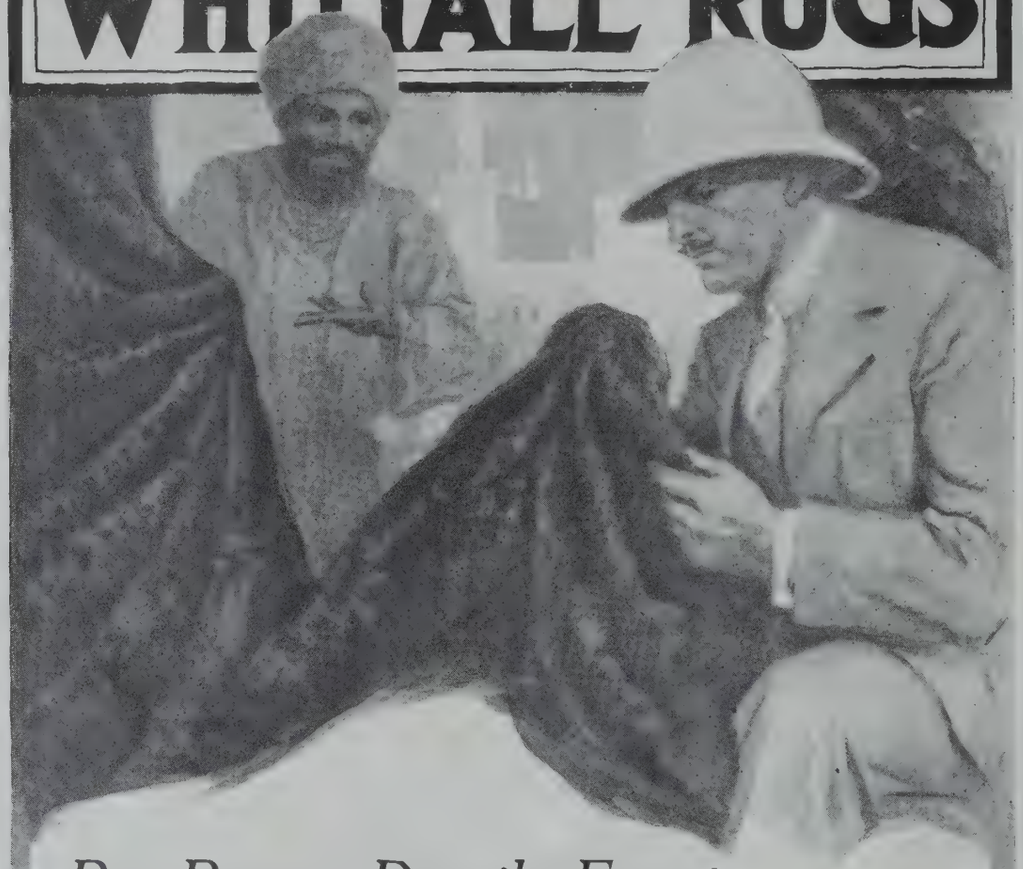

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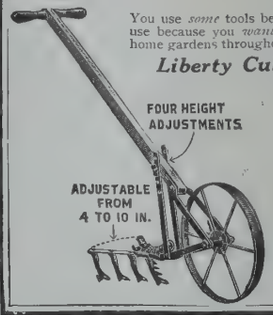

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A seven toothed cultivator easily and quickly adjusted to from 4" to 10" width. By means of a patent socket, it is attached to a wheelframe, as shown to left. You then have a wheelhoe that is adjustable as shown. Write for freely illustrated, descriptive circular of this and other Gilson Garden Labor Savers TO-DAY.

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An Everbearing Quality Fruit, just awarded First Class Certificate of Merit by the Massachusetts Horticultural Society

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Brookville,
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For October and November Planting

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With my list of bulbs I am combining

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in which I am offering many new shrubs and plants of recent introduction, none of which are included in my general catalogue. Both the Bulb List and the Supplement will be mailed to my regular customers, and to all others who request a copy.

It is generally known that there is a shortage of bulbs this year; this fact, coupled with transportation difficulties, means that few bulbs will be received. Prompt orders are your only assurance of securing the varieties you need.

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THE GARDEN MAGAZINE

OCTOBER, 1918

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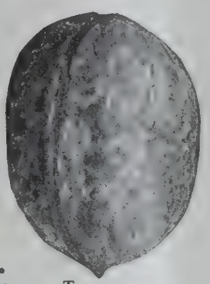

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12 Choice Iris for $1.00
12 Select Peonies for $2.00
12 Fine Phlox for $1.00

Send $3.50 for all three collections and receive an extra choice Peony and a big surprise ***FREE.***

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Wellesley Hills

Mass.

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While conditions are ideal

Evergreens, Trees and Shrubs, Home-grown Roses, Old-fashioned Flowers, Rock Plants

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New Hybrid Pyrethrums and Giant Flowered Marshmallow

These are but two of our specialties, and both uphold our name

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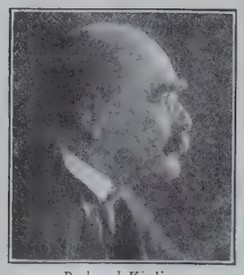
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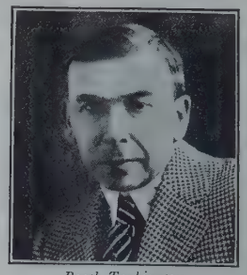
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The Garden Magazine

VOLUME XVIII OCTOBER, 1918 NUMBER 3

AMONG OUR GARDEN NEIGHBORS

American Plants for American Gardens

IS ONE of the results of the great war to be a reaction on the materials of our gardens? It may be perhaps altogether too far reaching even to dream of an all-American garden but, on the other hand, it cannot be disputed that in the past we have followed so slavishly the leads of the foreign trade that the splendid material of our own land has been given only secondary consideration. Even such a plant as the summer-flowering Perennial Phlox, thorough-going native that it is, is hardly appreciated as such because in its improved varieties it comes to us with the touch of the finishing education of a French school.

The very names that we read in the popular varieties were transported to us across the seas and while we return thanks to those progressive horticulturists of the Old World who saw the possibilities of our native flower, we should not forget that fundamentally the Perennial Phlox only comes to its own when it is re-transported to the gardens of America.

Unfortunately, except for certain so called "wild plants"—that is species that remain unimproved at the hands of the horticulturists, and which are collected rather than grown—there are very limited supplies of really characteristic American plants even in our leading nurseries. Of course certain shrubs, collected plants of Rhododendrons, Kalmia and Andromeda and such like are familar enough; but of the hosts of other available material of real merit there are comparatively limited quantities. Yet these things must sooner or later form the background of the American garden. They are the proper thing to plant because they are essentially and absolutely at home. Strange exotics can be introduced into gardens as embellishments and as "accents" but the background should look domestic.

There are many really desirable small-growing plants, that, equally with the Phlox, could fit into the American garden and undoubtedly as time goes on more and more attention will be given to them.

Of course, it would not be reasonable to suggest the banishment from our gardens of any intrinsically valuable plant simply on the ground that it is a foreigner. We need the Irises, and the Peonies and the Roses and some other popular flowering plants that give their wealth of bloom to the delight of our gardens. We welcome them because they actually fit, and recent years have seen tremendously important acquisitions in all these groups as the results of the workings of the plantsmen of America.

Where the exotic plant is found to be fitting and plastic in the hands of our own craftsman, so that characteristic types and varieties are produced that fit our own needs, we have in that fact sufficient proof that the plants merit further attention.

Little by little we are learning in this country how to develop Larkspurs, Primroses, and Pyrethrums that are more resistant to the climatic trials than their congeners from across the ocean; and, as the supplies of foreign material become more difficult of attaining, our dealers will naturally turn more and more to the available material at hand. The ultimate result cannot do otherwise than ease the work of our awakened gardening while adding greatly to the beauty of our surroundings, because the material will be healthy—it will in fact make a really American garden.

In Europe to-day, the so called "American Garden" is devoted to Rhododendrons and allied plants that demand a soil more or less sour and peaty. In brief, the American garden is conceived by our friends as a garden of Ericaceous plants. Perhaps in the near future we shall be able to demonstrate to them that an American garden can show as much diversity as any other kind and that we have at our hands plants of sterling merit that do not of necessity grow in peat.

Why Plant Now?

THIS month we stress with more than usual emphasis the splendid opportunities of fall planting. It was not so very long ago that fall planting was regarded as a fantastic dream by the majority of people who were not expert horticulturists.

That a plant can be moved in the fall, when its seasonal activity is on the decrease and it is fast approaching the dormant stage, surely does not now need any bolstering argument. In the nurseries the fall season has always been the period for the rearrangement of stock. Enough said!

This year the argument for fall planting is greater than usual because of the decided uncertainty of conditions next spring. Freight and express may possibly be badly congested, worse than they were in the spring of this year.

In the spring plants are starting to grow and must be put into their permanent places with the utmost speed. The curve of growing activity is upward in the spring but in the fall the curve is on the down grade. Delay in transit at this time of year, barring frost, is of no consequence to the plant's vitality. The forehanded gardener will not only place his orders this fall so as to secure selection of available stock but wherever possible he will take immediate delivery. This does not necessarily mean that the final planting will be done this fall. Indeed it is not necessary. Stock dug and delivered this fall may be heeled-in over the winter and is then available for ultimate disposition in the spring without any delay. Wherever possible purchasers of stock at this time are advised to get delivery by express rather than by freight; and, even though the goods be delayed somewhat in transit, preparations can be made at leisure at this time so as to give the materials the best possible attention on receipt. Some extra preparation may indeed be very necessary for late delivery of bulbs, and a bed prepared at once can be kept from freezing by proper covering so that the bulbs may be safely planted well into winter.

Next Year's Food Garden

TAKING time by the forelock is the essence of good gardening; and the leisure in gardening that comes with the declining year may be turned into productive capital by starting next year's garden now. This has been proven in more than one sense of the word.

In the first place, when the errors and lessons during the current year are fresh in mind, the present is a good time to work over plans and rearrange the spacings and successions and the quantities. There is no reason indeed why the seed order should not be blocked out at this time when it can be done in the intelligent light of visible results.

Elsewhere in this number of THE GARDEN MAGAZINE will be found articles that in one phase or another discuss fall work in anticipation of the spring drive. A certain amount of preparation done now will repay tenfold the like work done next year—and it can be done more easily. Soils can be improved by proper attention now. Don't wait until spring to increase available fertility. Add manure now, dig, and trench; sow rye as a cover crop. It will give the essential humus.

There are good reasons, too, for planting fruit trees, even in ornamental borders. Fruit trees are also flowering trees but if the flowering effect is not desired give a thought to the possibilities of nut trees, Filberts for hedges for example, Walnuts for shade or specimen. One splendid point about the nut tree is that it yields a valuable food product in increasing degree without future attention after it is once planted. Walnuts, Pecans, Japanese Chestnuts, Filberts, all these

to select from and yet few gardens have even one specimen of any nut. Why? Because it has not yet become a habit to regard the nut tree seriously. Isn't it time that we woke up?

Plan in the Fall.—One always reads in the spring recommendations to begin drawing up garden plans before planting. Perfectly good advice of course, but why not a still better idea, to do it in the autumn? It is then that our mistakes are freshest in memory, some being hardly yet a memory, more an actuality! Errors in arrangement show up plainly, poor choice of varieties can be most easily noted, while at the same time we jot down as a reminder the name of that more successful sort our next-door neighbor had. Keep your notebook handy and working all summer and before the crop of good ideas has been stored away for winter, sketch out your next year's garden plan, even roughly; and then elaborate if you like, in the spring.—*Clare M. Bell, Ohio.*

That Blue-Berried Vitis.—I am obliged to Bernard H. Lane, who gives, in the August number, such a clear description of the Vitis he has, that on comparison with the vine I asked about I am sure they are the same. I note the red stem and the blue berries, as well as the general habit of the plant. At the same time I shall have to envy him his less rigorous climate of Washington, D. C., as compared with that of western New York, for the vine is not quite hardy here. It froze down to the ground last winter, as I did not give it any protection. It came up in the spring, more bushy than ever before and the leaves in a bunch are very handsome. It does not always blossom here, but as the foliage is its chief attraction that does not matter much.—*John W. Chamberlin, N. Y.*

Success With Fall-sown Sweet Peas.—Such a coincidence! I, like J. W. Ginder, also planted Sweet Peas two or three days previous to Thanksgiving Day last year. Though the time of planting may have been the same yet probably there is much difference of climate between Ohio and Washington. My row, only about ten feet long, was trenched and prepared in the usual way. I made two little furrows, parallel, about 8 or 10 inches apart, forming a double row. The little furrows were only 3 or 4 inches deep. In each I placed a half-inch layer of sifted sand. On this sand I sowed, rather thickly, seeds of Hercules, King White, Florence Nightingale, and some old seed left over from spring planting of Margaret Atlee and King Edward. All were Spencer varieties. Over these seeds was placed another half-inch layer of sand. The seeds were simply sandwiched between the layers of sand. Over all I put fine loam, until within an inch or two of the top of the furrow. Planting was followed by mild weather for a couple of weeks, when there came a rain and heavy frost. On ascertaining that the ground was frozen hard I placed over the Sweet Pea bed a heavy layer of ordinary wheat straw. The winter was pretty severe and very little thawing took place from then on; but when I saw that there was danger I left part of the straw off at night when sharp weather was expected so as to freeze the bed hard again. Try as I might, though, along about March 12th I found Sweet Peas coming up thick and fast. I then took off about half the straw. Soon the seedlings were coming through that amount of straw and I drove sticks in the space between the two rows and on cold nights burlap was placed over them, the sticks preventing the weight of the burlap from contact with the seedlings. Only two seeds of Florence Nightingale came up. I attributed this to the fact that Florence Nightingale is a wrinkled seeded Sweet Pea, and probably tender, as is its cousin the wrinkled garden pea. But I don't think one seed of King White, Hercules, King Edward or Margaret Atlee failed to come up. My Sweet Peas had no frame whatever. No coddling except what a little burlap on freezing nights could furnish, and the spring was fully two weeks backward, yet on June 12th I picked my first flowers, and had them in greatest abundance, very large flowers and say! but my Hercules had some stem—like a hand spike! The summer was cool and they had no watering, and were not troubled to any great extent by aphis. I have found a fine spray from the hose a good remedy for aphis. I attribute my success, first to the sand at planting, which drains away all surplus moisture; keeping the ground well frozen through the winter, and after the seeds are up giving protection during hard freezing weather. But for fall planting generally, I believe the smooth seeded varieties will prove most successful.—*Mrs. R. W. Walters, Ohio.*

A Novel Centre Piece.—One day last fall I found myself without either flowers or ferns for my dining table and began looking for a temporary substitute. Some Pachysandra was growing near the front walk and the green leaves stood out boldly against the drooping foliage of the other plants, which had been killed by the frost. In a moment of inspiration I picked a number of these leaves, getting them with fairly long

The Mountain Spurge (Pachysandra) is an enduring evergreen for indoor decoration

stems, and thrust them into a low, glass bowl, using a wire support, purchased for Pansies, to hold them in position. The broad leaves hid the support almost entirely and gave the impression of a growing plant. The effect was so pleasing that I decided to keep the unusual centre piece until the leaves wilted or dropped. Well, they are still green and glossy when this is written, early in March. I have changed the water frequently, or, rather, have added fresh water as that in the bowl has evaporated, and have kept the bowl out of the direct sunlight, but the tenacious hold on life shown by the leaves is most surprising. The bowl of green foliage is much admired by guests, although few know from what plant the leaves came. Sometimes I have added a few red berries for the time being, small Rose hips or Hawthorn fruits, and the effect has been cheerful. Nothing which I have used on the dining table has required so little attention or proved more generally satisfactory. It may be that other housekeepers will like to know about this little experiment.—*Harriet Farrington.*

Stake Tomatoes, or Not?—There is something to be said in favor of both the staking and let-alone systems of growing tomatoes, but one point in favor of the former was proven satisfactorily to me this summer. Being one of a committee of War Garden judges I had opportunity of seeing gardens of all sorts under varied conditions, and in almost every instance, those tomatoes that had been trimmed and staked and given good cultivation had escaped the dry, or blossom end, rot so prevalent here this season, while the let-alone vines had suffered more or less badly.—*Clare M. Bell, Ohio.*

Fighting Tomato Leaf Curl.—If the tomato vines in the back yard garden were afflicted with leaf curl this summer, it is reasonably certain that they will be similarly afflicted next summer. The spores live over in the soil, and the limits of such a garden are too restricted to make a planting shift effective. The only thing to do is to settle down to fight the disease the best you may as long as you grow tomatoes in that place. If nothing is done you will find that however sturdy your plants may be when you set them out the lower leaves will soon begin to show signs of curling. This will follow up the plants as they grow, getting steadily worse. The disease can't be cured, so it must be endured and held in check as much as possible. To do this it is necessary to begin at the beginning. See that all the earth in which the seeds are planted and to which the seedlings are transplanted is thoroughly sterilized. This may be done by saturating it with formaldehyde and water—one ounce of 40-per cent. formaldehyde to one gallon of water. No planting should be done until the solution has evaporated—in about ten days or two weeks. Also dip the flats in the solution and let it dry on them. This should protect the plants until they are set in the garden and give them as good a start as possible. Just before setting out dip the plants top first into a bucket of bordeaux mixture, or Pyrox or some other proprietary modification of it; and then every ten days or two weeks give them a thorough spraying with a similar solution. This will prevent the disease from becoming serious, and with good culture, fertilization, and irrigation, the vines can be carried through their usual season—until a killing frost—in fairly good bearing condition. I have had the leaf curl in my garden for about six years, and for a time thought that it would be necessary to abandon tomatoes, but with the treatment here outlined I have raised fairly good crops.—*W. L. Wilson, Indiana.*

Osceola the Periwinkle City.—When I struck the little city of Osceola, Ark., last autumn I knew right away that the people there took the Vinca (or Madagascar Periwinkle) seriously. That is, I knew they gave it serious consideration if the prominence a plant is given is a determining factor. Vincas were growing upon every available foot of soil in the little river port. They grew upon both public and private grounds. Long straight rows of the glistening pink and white blossoms above the oily green foliage bordered the sidewalks and beds of other flowers. In the gardens of many individuals this dainty flower found first place. I could not understand its popularity and asked an old Negro gardener to explain it to me. His answer embodied a motto that would be good for every gardener to follow: "When you find a good thing, stick to it." Then he told me of the difficulties the gardeners of his town had experienced prior to the advent of the Vinca. The alluvial Mississippi River soil contained so much nitrogen and other elements of plant food that Petunias and Phloxes had crawled over the ground like watermelon vines. Geraniums had imitated tomatoes in their manner of growth—and other bedding plants did likewise. Therefore when an up-to-date gardener succeeded with a row of Vincas everyone in town admired and copied. That is how Osceola came to be regarded as the "Periwinkle city," for that is what everybody calls it.—*Buford Reid, Osceola, Ark.*

"Whence Comes the Aster Louse?" asks one of the "Neighbors" in August, page 30. The name is wrong. It is ground or blue aphis, very troublesome in continuing dry weather and tended to and carried by ants. Whenever you notice ants working around a plant be sure that they prepare the nest for their milch cows "the aphis." Watering with a medium strength of nicotin solution—say two tablespoons to one gallon of water—will stop the ants from further work. Destroy all ant nests in your garden with the same treatment. My experience is this: 1. Never use fresh stable manure for flower beds; take well rotted two or three year old cow manure or commercial fertilizer; 2. Treat the whole bed (especially Asters) with flowers of sulphur, rake it in after spading, or else make a hole with a small tool, put in a liberal dose of sulphur so that it covers all the walls of the hole, set your Aster, and, when you have finished, water. This treatment is also good for vegetable plants which are likely to contract the same trouble—cabbage, rutabaga, etc. When seeding onions, radishes, turnips, etc., in drills, put in first the flowers of sulphur, then the seed. No insect will go near it. Flowers of sulphur is cheap, will not affect the growth, nor will it spoil the taste.—*George Wendt, Holland, Mich.*

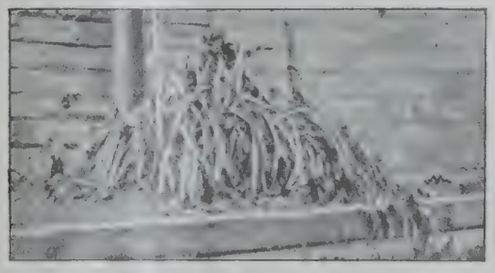
—I have something to offer and have tried it several years and have the finest of flowers. When sowing the seed work hydrated lime into the soil, and again when you transplant them in the bed. I have never had any more trouble with the louse since using the lime which is the fine lime (powdered) that plasterers use for finishing walls. I get it at the hardware stores.—*Mrs. G. G. Hartley, Ohio.*

Buddleia Asiatica as a Decorative Plant.—Buddleia variabilis and its various forms are well known as summer-blooming shrubs outdoors. B. asiatica, while equally hardy, is of no value in the open as its racemes appear too late. However, as a greenhouse plant it is one of the finest we have for midwinter flowering. Two years ago our plants did not often see flowers until January. Last year the earliest batch were at their best for Christmas, while this year I had a number in perfect flower for Thanksgiving, although the plants had not had any higher temperature than 50 degrees at night. The delicious fragrance of the pure white racemes of flowers, which are borne in great profusion, and the fact that it has good keeping qualities in both the house and the ordinary greenhouse, make it a plant of peculiar value to the small grower. It is of the easiest propagation and culture, succeeding best when planted outdoors from June until October. It can be grown in either bush or standard form, and big handsome plants can be grown in ten months from cuttings. Buddleia Farquhari with light pink racemes, wider than those of B. asiatica, makes a fine companion to the latter. Any one possessing a small greenhouse or good sunny bay window can succeed with either of these charming winter-flowering Lilacs, as they are commonly termed.—*W. N. C., Mass.*

China Needs Chinese Plants!—We read The Garden Magazine with great profit as gardening is our hobby and recreation aside from supplying our table with food the year around, and producing flowers for the sick as well as ourselves. We continually see mention of Wilson's "finds" in China and wish we might profit by the information gained by his and others' scientific efforts here. Is there a report of the desirable things with the location in China and any information as to where we ourselves can get these things here? If he has the Chinese names for these things it would be of help to us in securing them. I see a Chinese "Hugonis" Rose advertised widely. Do you know where this can be secured in China? We have had great disappointments in getting stock from America. Some things can be secured from Japan and of course some things locally. We are only a few hours from Shanghai, in a fine climate in a district of great fertility—cotton, and beans in the summer, wheat in the winter for main crops. We have scores of Deutzia from slips of a local variety which is wild in the mountains of Kiang-Si. What can we graft onto it? We have D. scabra, Sieboldiana, Lemoinii, secured from Japan last year. I suppose they can all be grafted on to it, but what else?—*G. L. Hagman, Nan Tung Chow, China.*

—Unfortunately, so far as we know, there is no such thing as a Chinese nurseryman. Mr. Wilson's plants are listed in "Plantae Wilsoniana," published by the Arnold Arboretum, Harvard University, Boston Mass., it is purely technical. The Chinese names are not generally given. It is doubtful whether the plants have universal Chinese names, as they came chiefly from the interior regions of western China. Why graft Deutzias at all? They strike so easily from cuttings and "own root" plants are far preferable to any grafted plants.—*Ed.*

The Vigor of the Bleeding-Heart.—The Bleeding-heart is a plant that apparently conquers by yielding. I have known it to pass through winter after winter when the temperature dropped as low as thirty below zero for weeks at a time and this with no covering other than the snow. A late and exceedingly heavy frost catches it in May when ready to bloom and though the herbage wilts down to the ground the courageous plant is up again in less than three weeks. Then the first day of July, a hail storm, such as only the prairies know, pounds it down flat to the ground and toward the end of July the herbage is well along in its growth again. The Bleeding-heart will grow in full sun and in places where any direct sunlight reaches it only for an hour or two each day. The one drawback, its tendency to ripen its foliage soon after its blossoming period and become untidy in appearance, is no great drawback when the gardening season is so short any way; besides, cutting down the herbage or planting it where shrubs or later growth will hide it, overcomes this defect very nicely. If you don't know what else to plant, plant a Bleeding-heart.—*C. L. Meller, North Dakota.*



Bleeding-Heart (Dicentra) for all its fragile looks stands 30 degrees below zero

And will grow in full sunshine as well as in partial shade

Azalea in New England—Are you not too pessimistic in your statements that Azalea viscosa is the only hardy Azalea in New England? At Wellesley Azaleas arborescens, calendulacea, nudiflora, and viscosa are perfectly hardy. The Ghent Azaleas are practically hardy, and the finest of all. Azalea Vaseyi never suffers, a plant of this in moist soil 15 feet high is a sight. Azalea Kaempferi does not suffer, and at the Arnold Arboretum there are probably many more varieties. I think it is a pity to discourage people from trying different varieties of shrubs and especially in this case. Azalea Vaseyi seems to me to be one of the best shrubs we have; it seems to like moisture and nothing could be more beautiful than a mass of Azalea Vaseyi in bloom with a foreground of Darwin Tulips.—*H. S. H.*

Wanted, the Universal Soil.—I would like to ask the experts if there is anything extant in the nature of a universal soil, such as practically all sorts of plants will grow freely in? I used to suppose that any deep, rich soil was fit for all the ordinary flowering plants and vegetables, but recent experience does not confirm the idea, For instance Asters, Cannas, Dahlias and some other plants do not like a soil that is so light that it dries out quickly. Even a good deal of watering fails to put them at their best. A heavier soil suits them so much better that I shall try to provide it for them hereafter. Then I am told by an experienced Rose grower that it is useless to plant Roses in light soil. They want heavy clay. My potatoes, cucumbers, onions and other shallow-rooted vegetables refuse to produce crops in light soil, but corn does remarkably well and all root crops thrive in it. What would happen if I should adopt a clay soil and put everything into that? Would certain other things suffer then? Again is this a matter of the fertility of the soil, or a mere lack of adaptability to the mere physical condition of it? I am inclined to believe that it is the latter. Then there is the shade proposition. Some plants do not like it, while others die in the heat of a sunny season. With us the amount of sun provided in one season differs widely from another. My Godetias will not blossom till they can get into the shade for at least a part of the day, and maybe die if it is not afforded. Even Portulacas suffer. So far as I am informed, and I read all the books I can find, the authorities are pretty silent on this subject. Then there is the treatment for insects, such as will kill them outright. There ought to be something of that sort. I can deal with slugs, cabbage worms, potato beetles and aphis, but can do nothing with the tarnished plant bug, which makes it impossible to flower Dahlias here and severely injures Calendulas and Asters.—*John W. Chamberlin.*

[—It is hardly to be expected that all the conditions governing the life of all plants can be reduced to one common denominator. The surface of the earth varies and different regions develop different floras in nature. We try to combine all in our gardens which are after all very artificial. A general average of soil with fertility in reserve is the best we can do. Physical condition of the soil is recognized as a great factor in estimating its value for plants, because air and water *must* circulate through it. Nor do we think it probable that a general insecticide will be discovered that will surely kill the pests instantaneously without also destroying the plants, for both are living things and have certain factors in common.—*Ed.*

Our Polyglot Garden.—Has anybody noticed that gardens were more than usually polyglot this year? It may be traceable, like everything truly modern, to the war. I shall never get to planting "all the beans of the Allies," as one friend enthusiastically proposed to do; I had one mouthful of the English broad beans at a Chester hotel one July years ago that convinced me I should never agree with the English taste

in vegetables. It seemed to be a bean nurtured in the refuse of a glue factory, sprayed with kerosene, plucked and kept in a dark cellar till it bluemoulded—then cooked and served, with a minimum of salt, and all the adventitious flavors well retained. I had never seen the horrid bounder grown in this country, and never want to. [That's all right in Chester but just you try them in England or better Scotland. The American climate is too hot.—*Ed.*] But other "beans of the Allies" are more or less in evidence hereabouts in my district. As a curiosity, the fava, or Italian horse-bean, is the most striking feature of some American vegetable plots, as well as of some Italian residents' gardens. It is not like a bean in physique, but more like some of the leguminous weeds of the Rocky Mountain flora. It has pale gray-green, glaucous three-parted leaves coming horizontally from a strong, angled stem about a yard high, branchless. At the axils, clusters of three or four flowers are borne, white and black, rotting to inky shreds in rainy weather, and each cluster succeeded by one Martynia-like pod sticking up skyward in an assertive manner and rapidly taking on size and padding. The beans when ripe are olive-drab in color, irregularly round, flattened, with a heavy skin, and larger than limas. Cooked green, or dried and boiled, they are a rich food. Sicilians serve them with plain macaroni and grated cheese, peeling the beans one by one on the fork as they are taken up steaming hot. They are hearty, and of good flavor. Plants yield heavily in hot seasons. They should be grown four in a hill, and well earthed up for support; they do best planted in March or April—*E. S. J.*

Roots and Bulbs for Winter Flowering W. SHEWARD

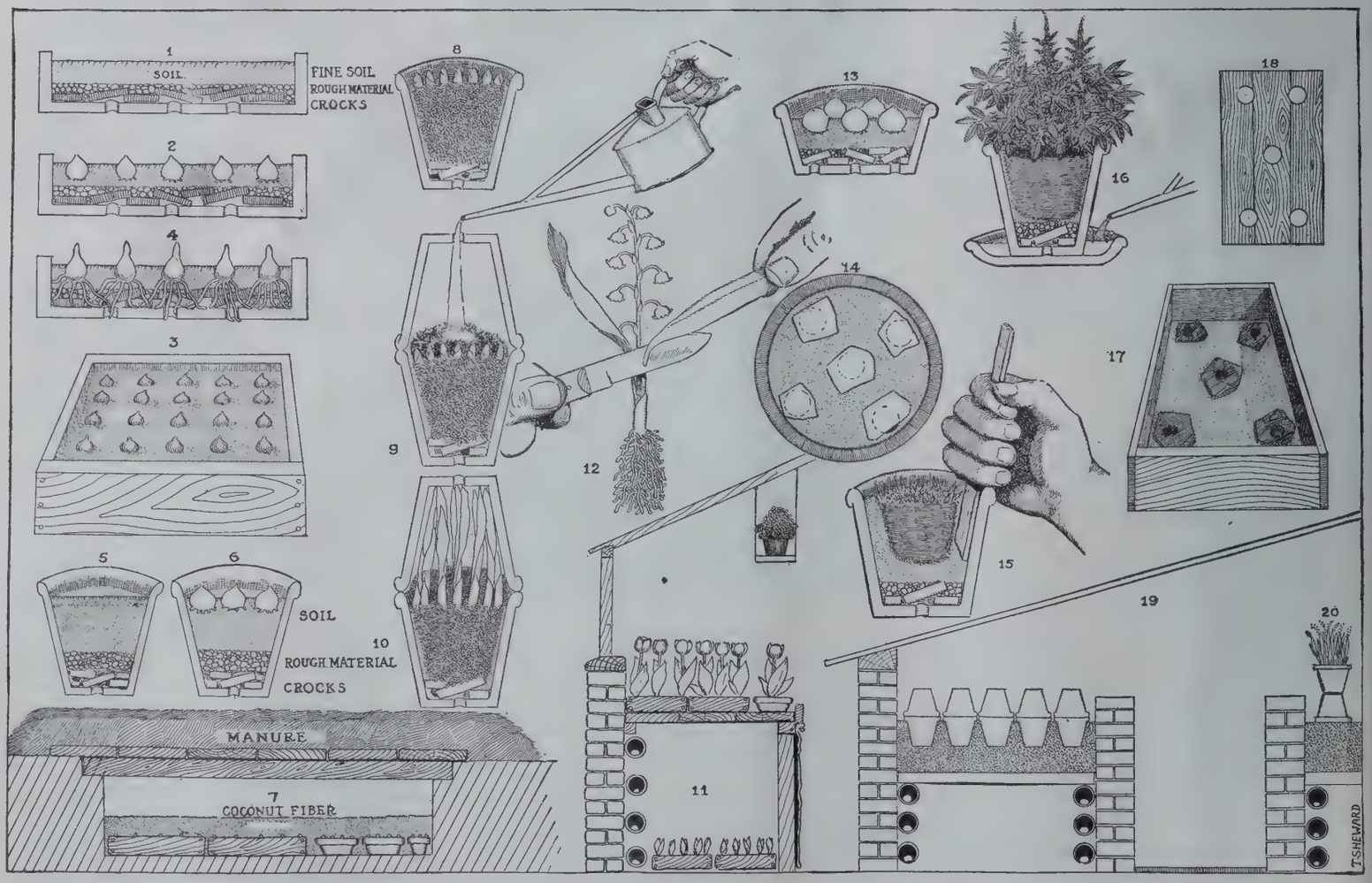
Tulips, Hyacinths, and Narcissus in boxes if intended for cutting, or in pots and pans for house decoration. *Soil:* Equal parts of plain loam, leaf soil, and sand will make a good mixture for potting. Mix well together and pass through a ¼-inch sieve. The rough material from the screening can be used for drainage in pots and boxes.

Planting: With boxes the first thing is to make holes for drainage in the bottom of the boxes (Figure 18). Over the holes place crocks, or pieces of broken pots (Fig. 17), and the rough material from the potting soil over the crocks, putting the fine soil on top. Fig. 1 shows a section through a box. Fig. 2 shows the right depth to plant and Fig. 3 how to space the bulbs in the box. Fig. 5 shows a section through a pot. Place crocks over the hole in the bottom of the pot, rough material over the crocks, and fine soil on top. Figs. 6 and 13 show the right depth to plant the bulbs. Fig. 14 shows how to place the crocks over the holes in the bottom of a pan.

When the bulbs are planted or potted place them in a root cellar, or, if no root cellar is available, in a pit outside 2 feet deep and covered with planks and manure as shown in Fig. 7. Place cocoanut fiber refuse over the boxes and pots 6 inches deep. When the bulbs begin to send out small roots as shown in Fig. 4 take them inside in batches as required and place under the greenhouse stage (or in a dark closet), water well and hang some sacking in front to keep them dark, Fig. 11. About two weeks later put in a light place to flower.

Lily-of-the-Valley is generally bought in bunches of twenty-five. A 6-inch pot will take twenty-five pips or crowns. Make a good drainage by placing crocks and rough material in the bottom of the pots (Fig. 5), and pot up the roots spreading them out evenly (Fig. 8). A flat piece of wood is used to get the roots in the pot. See Fig. 15. Place moss over the crowns and cover with another 6-inch pot, Fig. 9. *Watering:* When potted place the pots in a propagating pit or a frame in the greenhouse where there is bottom heat with a temperature of 85 degrees, plunging the pots up to the rims in cocoanut refuse. Fig. 19 shows a sectional view of a propagating pit. Water twice a day using rain water if possible and heating it to the temperature of the pit—85 degrees. In about two weeks the plants will be up to the top of the pot (Fig. 10). Remove the top pot. In a few days the flowers will begin to open. This is the time to remove the foliage (see Fig. 12). The first few batches early in the year do not make much foliage but later make foliage at the expense of the flowers. Where the Lily-of-the-valley is forced every week for cut flowers the foliage is used from the preceding batch. When the foliage is cut, stand the pots out of the fiber (Fig. 20).

Spirea: Pot up the clumps in 6-inch pots, ramming the soil firmly with a wooden rammer as shown in Fig. 15. Place in a pit (Fig. 7), and take into the greenhouse when needed. Spirea likes plenty of water so stand in saucers, (Fig. 16). When watering do not wet the leaves but fill up the saucers.



SAVING THE TENDER VEGETABLES. When frost first touches peppers, egg plant, tomatoes, etc., gather the crop and store in a dry cool place. Placing in boxes between layers of sawdust will prevent shrivelling. Pumpkins and squash like heat and must be kept dry. Alongside the chimney in the attic or behind the kitchen range makes an ideal storage for vine crops

STORING CELERY. Store celery in trenches, lifting the plants with considerable root and packing them quite closely together in a trench made about 1 ft. deep. It can be done between two rows of celery leaving the outside rows undisturbed. Mound up the soil to turn the water and place sufficient covering on top to prevent frost striking through

COVERING LATE SOWINGS. Cover late sowings of spinach, turnips and other hardy vegetables intended for wintering but wait until a crust is formed on the ground by the frost. Apply a light covering of leaves or litter which can be kept in place with corn stalks or pine boughs. Peas, onions, and radishes are improved in yield and earliness by this method of handling

DRY STORAGE OF ROOT CROPS. Store carrots and beets in the cellar. If a cool cellar is not available the roots will of necessity shrivel in storage and become proportionately tough. Therefore place the roots in boxes with layers of sand between to exclude the air. Use sand free of loam and not wet; a moderate amount of moisture is helpful but excess leads to decay

STORING without a STOREHOUSE

The Garden Movies, No. 10

No reason to lose the results of the year's labors even if you have neither cellar nor shed. The good old earth that gave the yield will keep it

Photographs and Descriptions by
W. C. McCOLLOM

STORING CABBAGE FOR WINTER. Select the best heads and pull out by the roots. Place upside down in a trench about 2 ft. deep and wide enough to accommodate. Fill in the trench and mound up to turn the water. A covering of leaves or litter after a crust is formed is advised, not for protection but to facilitate the opening of the trench when desiring to get the contents

STORING RUTA BAGAS AND TURNIPS. These are absolutely hardy and freezing improves texture and taste. Place in trenches or simply in a pile and cover with salt hay or leaves. It is advisable to put something over the top to turn the water

PREPARING THE ROOT CROPS. As cold weather approaches gather all the root crops starting with the beets and carrots and finishing with the parsnip and turnip which will stand severe freezing. Dig the roots, do not pull. Remove top close to the root (except beet, where a little top should be left to prevent bleeding). It is much easier to twist the top off than to use a knife.

OUTSIDE STORAGE OF ROOT CROPS. "Hardy" root crops will keep in trenches in the open ground. Keep each type in separate baskets or boxes, or in groups in the bottom of the trench with boards or leaves between. Cover with leaves or straw before mounding

THE MONTH'S REMINDER, OCTOBER, 1918

The purpose of the Reminder is to call to your attention the things which should be thought about or done during the next few weeks. For full details as to how to do the different things suggested, see the current or back issues of THE GARDEN MAGAZINE. *(An index of contents is prepared for each completed volume, and is sent gratis on request.* *** *Check off with a pencil, in the square* ☐ *provided for that purpose, the items that apply to your own case, and use the page as a reference list.* ***

IT IS NOT all over yet! October is a late month in the garden, but by no means an empty one. In fact, if one takes full advantage of every thing that can be done, it is one of the fullest months in the whole garden year.

In the Vegetable Garden

FIRST of all, *don't let late weeds go to seed.* ☐ Go over the garden carefully and pull out or cut out every weed seen. Some of the worst things, such as chickweed and quack-grass, make a strong growth in the cool fall weather and mature tremendous numbers of seeds when the casual observer is taking it for granted that everything has stopped growing. ☐ Buy or make a "weeding spud." This is nothing but a sharp blade on the end of a straight handle, preferably with a projection or step at right angles, so that it can be forced with the foot, through the root of a large weed when a thrust with the hand is not sufficient. A tool of this kind will prove invaluable in the late crops in preventing the sowing of trouble for next year.

Clean up as you go! When you are through with a crop, pull it up and feed it to the chickens, or burn it. The remains of most crops should not be put in the compost pile for fear of carrying over disease germs. ☐ Take up your bean poles and tomato supports and store them away under cover. It is wasteful as well as unsightly to leave them to freeze in the ground.

☐ *Sow every square foot* with the winter overcoat. It is a little late now for putting in vetch in the Northern states, but still time for rye. Even if it no more than sprouts before freezing weather it will begin growth early in the spring and make a good crop for spading under in time for next year's late plantings.

☐ *Protect the tender crops* from early frost. Almost invariably the first few killing nights are followed by quite a long "spell" of good growing weather.

☐ Save the things that can be saved and enjoy your garden for several weeks more. (See last month's GARDEN MAGAZINE, page 43).

Lettuce, string beans, lima beans, egg plant, melons and other tender things that are often caught, before they are through cropping, by the earlier frost may be protected by a light layer of marsh hay or of dry leaves. Go over the melon vines just before danger of freezing and remove all surplus vines, and all fruits that have no chance of maturing. The remaining vines with the larger fruits attached can be gathered up into a small space about each hill which may there easily be protected.

Handle as Careful as Eggs

THE "hard shelled" fruits—pumpkins and squash—bruise very easily and each bruise is likely to become a centre of decay after storing. After the vines have been killed leave fruits for two or three sunny days with the bottom side up to dry thoroughly and then store in a dry place. Vegetables which can be left until hard freezing are beets, cabbage, carrots, chard, parsnip, salsify, rutabagas, winter radishes, and turnips. ☐ Get potatoes in quite early as they may be injured by freezing in the soil.

☐ *Harvest the onions.* If they have grown late pull them and lay in rows just as soon as the tops break open and the roots show a tendency to part readily from the bulbs. If left even a few days too long they may be ruined by a spell of wet weather which will start into rot and stop growth. Break over or stir up the rows every day until tops are fairly dry and then store under cover in a thin layer where they will get all the air possible.

Get Permanent Storage Ready

HAVE you a place for everything you want to save this winter? If not, get busy now or some of the things, which you have in temporary storage under cover, may be frost bitten before you get them into permanent quarters. *Don't neglect this!*

Save seed where you can. Don't let go to waste any crop from which you can get seed. Products which have got too old or tough for use or even for storing, may often be utilized for producing seed. (On page 86 of this issue further instructions for seed saving may be found.)

Plant Shrubs This Month!

RIGHT now is the best time of the whole year to add to the attractiveness and value of your place by improving the *permanent* features. Plant shrubs this month any time before hard freezing, but *the sooner the better.* If you haven't followed our advice and ordered already there is still time to do it—if you hustle. You can't spend your money in any other way that will bring as long lasting and big returns. Well planted grounds are equivalent to money in the bank. BUT——

Don't scatter shrubs indiscriminately over the whole place. Shrubs stuck around all over the lawn are worse than none at all. Plan your shrubbery planting carefully. Remember it is for a long time. Keep the plants around the foundations of the house, near the boundary lines, or in corners or curves along paths where they can be seen to the best advantage, and will not break up other views. Group carefully, so that the taller ones will be kept to the back, and the period of bloom extended over as long a season as possible.

☐ Get ready for planting before your shrubs arrive. Mark out with great care where each thing is to go, and either dig up the whole border and enrich it with bone and manure; or if that is not feasible, dig out the individual holes to a generous size—much larger than merely large enough to take the ball of roots—enrich it and have it ready for planting as soon as the shipment arrives from the express office.

Take good care of all shipments immediately on receipt. If, in spite of your good intentions, your plants arrive from the nursery before you are ready for them, dig a trench in a well drained part of the garden, and "heel in"—simply undo the packages, and set the plants out as thick as they will go in the trench, covering the roots with soil. Then take them out as wanted for planting, being careful not to expose the plants to sun or wind for more than a few minutes during the planting operations.

☐ Get the materials for winter mulching now. Remember that the newly set shrubs will need mulching later on when the ground freezes, and get the material for this protection *now.* Get dry, well rotted manure if possible: otherwise marsh hay or leaves will answer the purpose.

Bulbs and Flower Border

NOTHING will more surely give returns for good care in preparation of the soil than spring-blooming bulbs. If your Tulips, Narcissus, and Hyacinths have not yet come in remember that they are likely to arrive at any time now, and *the sooner thereafter you can get them into the ground the better.* ☐ Prepare the bed in advance. Essential points are:

First; thorough drainage—fill in if not naturally good.

Second; rich soil—don't believe that "bulbs will grow in any soil;" they will *exist,* but for the best blooms, enrich thoroughly with bone meal, *very* finely rotted manure, or both. Note: (Avoid fresh manure, as it may rot the bulbs).

Make sure of the drainage, when planting, by dropping a handful or two of sand in to each hole before putting in the bulb. Probably more bulbs are lost from rotting than from any other one thing, and this simple expedient affords the best protection. This is especially important in planting the hardy Lilies.

☐ Arrange for bulbs that may be received late—after the surface of the ground is frozen hard—by preparing the bed and covering it with straw or manure to keep from freezing, so that planting can be done easily when the late bulbs finally come in.

☐ Get ready material for mulching later. As with shrubs winter protection will be wanted later for the bulbs, and *now* is the time to make preparations for it.

Plants for the House and the Winter Garden

DON'T let your porch boxes and outside window boxes remain empty and unsightly during the winter. Have you ever noticed how very attractive a few low evergreens, even the very low and cheap ones, are when used for filling in these boxes, after the summer flowers have been removed? ☐ Why not add this attractive touch to *your* house, this fall, to be enjoyed all this winter and next spring.

The plants which have been summered over for winter flowering should of course be taken in before danger of frost. ☐ But don't be in a hurry about it until there actually is danger; and then give all the air and sunshine possible.

Don't crowd your plants in the window. Better to discard some of them altogether than to have too many. ☐ Better still, however, to provide some of the modern convenient portable or folding wall brackets or shelves, and make room for several plants up the side of each window, instead of crowding them all on the sill. Hanging baskets can also be used for such things as Asparagus, Begonias, Ivy Geraniums, Fuchsias, Oxalis, etc.

In the Flower Gardens

MOST of the end of the season work which can be done now was suggested last month BUT—

☐ Keep late flowers supported with stakes and twine for the last fine blooms, as autumn winds and rains are hard on them.

☐ Where room is scarce, take *cuttings* of the things you most want to keep. These may be started in sand in a warm window in the house, and later transferred to small pots. In this way they can be carried over winter and still take up very little room.

Not yet too late to plant fresh purchases or to take up and divide late flowering hardy perennials. Don't leave overgrown, starved out clumps to give few and inferior flowers again next year. ☐ Take up, divide, and replant in fresh soil or in the same place enriched with bone meal manure, humus, etc.

☐ Get materials for the winter mulch; gather up every bagful of leaves that falls on your own place or near by. *Don't burn this autumn's leaves.* Those you don't need for mulch, will be valuable decayed, as leaf mold next year.

THE PATRIOTIC GARDEN

FOOD F·O·B THE KITCHEN DOOR

He also Fights who helps a Fighter Fight

EAT·FRUIT·AND·SAVE·SUGAR

EAT·NUTS·AND·SAVE·FAT

Real Experience in Drying Garden Produce

WILLIAM LESLIE FRENCH

The New Idea in Conservation—Actual Figures on the Handling of Fresh Produce—Comparisons of Bulk and Weight

DEHYDRATION, or the drying of raw or fresh produce by means of artificial heating, is merely a short cut method of producing under control, a result like that which is accomplished by the sun and air out of doors. It is one thing to produce food, it is another to conserve it. The national problem to-day is the conservation of the yield of fruits and vegetables which has been on a scale hitherto unprecedented, largely as a result of the aggressive campaign and teaching of the National War Garden Commission. The problem of the hour is conservation. Methods of canning are now pretty generally understood. Earth and cellar storage are nothing new, but drying the fresh product (driving out surplus water so that the residuum can be kept almost indefinitely and after a process of re-dehydration serve equally as well as the freshly gathered material) is not so generally understood, or, at all events, has been little practised. Drying has particular merits of its own. It reduces bulk, it reduces weight enormously, and the problem of a suitable container is practically non-existent. The dried product can be put in paper bags, cardboard boxes, old tin cans, or a multitude of other second-hand receptacles. As for space economy, a shelf three or four feet long will carry all the vegetables and fruit needs for a family over the winter. Dehydration has come to stay. It can be done in the home on a small scale (as was discussed in last month's GARDEN MAGAZINE) or it can be done on a more comprehensive scale under definite conditions of control where a group of people is organized to handle a quantity of produce. But specific details are better than any amount of general statements so let us look to what has actually been done in a demonstration way in meeting the Administration's appeal for greater food economy.

Mrs. George D. Pratt at work at the Dosoris Lane Dehydration Plant

The comparison of fresh vegetables and the dehydrated product showing quantity requisite to produce two ounces dry

HERE and there dehydration plants have been established at various convenient places throughout the country. One will serve amply as an illustration. Data in this article are obtained from the Dosoris Lane Dehydration Plant established by Mrs. George D. Pratt, Glen Cove, Long Island. Mr. Pratt, himself is Conservation Commissioner of New York and his wife has been energetic in demonstrating the practical service of a central dehydration plant. This article contains exact figures based on careful records kept during the current season. As a war activity the Dosoris Lane Plant is conducted for the direct benefit of the families of our soldiers and sailors. Dried products are being distributed through the Red Cross Home Service.

IN ALL dehydrating processes there are a few fundamental principles which must be observed. The vegetable products must be thoroughly washed or scrubbed, decayed parts or imperfections removed and sorted to size.

Root produce (such as carrots, beets, potatoes, and turnips) are preferably, passed through a rotary slicer, $\frac{1}{8}$ to $\frac{1}{4}$ inch thick and spread on the trays to $\frac{1}{2}$ inch in thickness. *Leaf vegetables* (spinach, swiss chard, and herbs) should completely cover the bottom of the trays to get the best results. *Peas and beans* can be in 1-inch layers. Peas when sliced into quarters are better adapted for making soups and purées than when dried whole. *Sliced potatoes* should be immersed at once in boiling water from 2 to 4 minutes. This method applies to the production of potato flour. But, to secure an exceptionally fine product—white, with a fine quality and flavor, and for storage purposes—I dip them in water at 196 degrees, keeping them there from 10 to 12 minutes. This sets the starch and other ingredients.

A sufficient amount of water must be removed to prevent deterioration. The average amount of water remaining should be close to 10%. In other words the dried material should not approach the state where it falls to pieces if in the leaf or is rigid with others. Likewise, the fuel value, flavor, and aroma must be equal to those of the raw material.

Air in motion combined with various degrees of heat accelerates the dehydrating process. Quick drying is desirable, because the chemical changes occurring after a product is peeled or sliced are of the character which will break down the tissue, alter color and flavor, destroy the food content, and produce almost instant decay through the action of bacteria, molds, and yeast.

Too low a temperature, say at 90°, will tend to sour the produce. Too high, 175° or 180°, will carry off the moisture rapidly, but the sugars, salts, and flavor dissolve. The cell structure must be maintained or this will result.

The proper preparation of the wet produce is very important; also the raw products must be fresh and preferably of a high grade or the results in dried quality will be poor. Obviously, high-grade fresh-gathered carrots will turn out better when dehydrated than old and stringy carrots. Only the best quality obtainable was used in the work under notice and all waste from cutting was dried for chicken food. This is cooked in water for about 20 minutes, and then fed to the hens which lay as rapidly and freely as if they had been nourished on the regular fresh feed.

IT IS preferable to use a full load of one product to facilitate drying in a uniform time, or produce of like character or similar dehydrating period can be run in together. This is a convenience when there is not enough of one kind to fill the machine. The leaf varieties can be dried at the same time. Carrots, beets, and turnips are excellent drying companions.

Type of dryer for community installation. Mrs. E. H. Harriman

AFTER the machine is full the material should be stirred once or twice to effect even drying. The frequent opening of the door will reduce the temperature and interfere with the quality and flavor. Whenever leaf products are being dehydrated, the blower should be turned off, else the product is apt to be blown from the trays. An operator will find at times that, even after a tray has been in the allotted period, parts of the material will not have dried evenly. Take the produce not quite dried and mix it with other of the same character and dry again. This is called reconstituting. When the vegetables are dry they are apparently brittle and they must be "cured" or "conditioned." Some of the material will have too much moisture, some too little; and in order to secure uniformity throughout, the product is placed in containers, either pasteboard or tin, and poured from one container into another occasionally during several days (3 or 4 usually) until the material is uniformly dry throughout. If this "conditioning" process is not employed, the spores of bacteria and fungi will begin their growth on the damper portions, which would spread disease or rot over the whole mass and utter loss would ensue.

Conditioning or evening up of the dried product may be done in the open air. At the Dosoris Lane Dehydration Plant a building is devoted entirely to the work. It was completely screened and every modern improvement installed

For storing the products paper bags paraffined on the outside should be used. But we also use square cartons paraffined inside and out which afford the best protection from dust, moisture, and insects. When ordinary paper bags only are available, the neck is twisted around and turned over, and tied with cord.

The "blanching" process or dipping in hot water, is unnecessary for fruits, although generally to be used for vegetables. I do not advocate the sulphuring process for bleaching, despite what others may say. It alters the quality even though it makes the product more attractive. To destroy all microörganisms, fruit unskinned may be dipped in a weak solution of lye—½ pound of concentrated lye to about 9 gallons of water. This perforates the skin and helps to dry the fruit more quickly. The product must be rinsed several times in running water before being dried. If after cutting an end no moisture appears the fruit is properly dried. It should be pliable but not snap. Berries after dehydration will be soft but not stick to the hand, when pressed. Cheese cloth is necessary for tomatoes and fruits so that they will not stick to the trays. It must be used where metal trays are employed so as to prevent the action of acid. A light oil such as nujol is better than paraffin to prevent materials adhering to the trays.

THE accompanying tables hold in convenient form an amount of data that will furnish information for prospective workers, such as the number of hours necessary for soaking any given product so that it is ready to be cooked. The principle holds good in general that vegetables can be soaked from 7 to 8 hours—or over night—but our experience is that the produce mentioned requires the actual number of hours given. If the material by chance should have been unduly old when dehydrated, then the time of soaking should be lengthened. Usually whenever a vegetable or fruit has taken up enough water to be soft, but not falling apart, it is ready for cooking. A sharp orange stick or dull knife, preferably the latter, will determine this. Further, all foods should be cooked gently, about as in a fireless cooker. The lid of the receptacle kept tightly closed to prevent steam escaping.

One table gives the amount per pound of raw vegetables and fruits which will ordinarily be purchased to feed four people with the dried equivalents for the same number. The unpopularity of dehydrated foods, vegetables especially, is due to the lack of knowledge as to the length of time it takes to prepare them for cooking. It has been called to my attention that more than 75 per cent of objectors to the use of dried products—vegetables especially—are people generally presiding over the kitchen themselves, who after soaking the material throw away the water and add fresh when it comes to cooking. Now the moment that water is added to a dried product it begins to give off some of the food content and flavor. *If this water is discarded and more added*, and the food subjected to heat, it becomes unpalatable—it has no flavor, not to speak of the loss in food values! The standard rule is that *every product must be cooked in the water in which it is soaked*. It is safe to add 1 part water to 3 of product if the vegetables are of the leaf variety: 4 parts water to 1 of root products. A little experience with the periods of soaking will give the average individual dexterity in judging whether the food is ready to be cooked. The eye is trained, not the taste.

When I hear persons declaiming against this method I know inversely that the kitchen boss has blundered. When Mrs. Charles T. Whitman, wife of the Governor of New York, after attending a luncheon where dehydrated foods were served, said quite frankly, "They are vile," she should have remarked, "Your cook is looking for higher wages, revenge, or is brainless."

THE cost of installation of a large dehydrating plant will naturally vary according to the amount of capital available. Our own plant is equipped with the latest improved type of dehydrating machine and all mechanical devices for labor-saving in the preparation of wet products are in use. But for communities relying generally upon public subscriptions, the information on the costs of installation are thoroughly covered by Farmer's Bulletin No. 916 of the United States Department of Agriculture. Dehydrating machines range in price from $250 to $1,000. Those who provide the capital can secure the interest on their investment by having the produce of their own gardens

TIME TABLE FOR BLANCHING AND DEHYDRATION OF VEGETABLES AND FRUITS.

Note: The dehydrating time and degrees of temperature of the vegetables and fruits are to be closely observed.

PRODUCT	BLANCH IN BOILING WATER HOURS	APPROXIMATE DEHYDRATING PERIOD	TEMPERATURE DEGREES FAHR.*
Beet Greens	2 to 3	2½ to 3	110 to 140
Beets	Till skin loosens	2½ to 3	120 to 150
Cabbage	3 to 4	3 to 3½	115 to 135–40
Cauliflower	6	3 to 3½	120 to 130
Carrots	5 to 6	2½ to 3	110 to 150
Celery	4	3 to 4	110 to 150
Corn	8 to 10	4	110 to 140
Leeks	Not necessary	2½ to 3	110 to 140
Lima Beans	3 to 4	4 to 5	110 to 150
Mint and other Herbs	1 to 2	2½ to 3	110 to 145
Okra	3 to 4	2 to 3	115 to 140
Onions	Not necessary	2½ to 3	140 to 160
Parsley	2	2½ to 3	110 to 160
Parsnips	2	2½ to 3	120 to 150
Peas	3	4	110 to 140
Potatoes (White)	2 to 4	3 to 3½	110 to 160
Potatoes (Sweet)	6 to 8	3 to 4	150 to 160–75
Spinach	2 steamed	2½ to 3	110 to 130–35
String Beans (green and wax)	2	2 to 3	120 to 150–60
Swiss Chard	2 steamed	2½ to 3	110 to 150–60
Summer Squash	4 to 6	3 to 3½	110 to 160
Pumpkin	4 to 6	3 to 3½	110 to 160
Tomatoes	Till skin cracks	3 to 3½	110 to 150
Turnip	2 to 4	3 to 3½	110 to 160
Apples	.....	5 to 6	130 to 160–5
Bananas	.....	2 to 3	150 to 160
Black Raspberries	.....	4 to 5	.....
Red Raspberries	.....	4 to 5	130 to 160
Blackberries	.....	4 to 5	110 to 160
Strawberries	.....	3 to 4	110 to 160

*Should be increased gradually from lowest point to highest.

dehydrated at the community plant, and instead of paying for that service, be credited with the price for dehydration. For example, if $2,000.00 was subscribed a fair rate of interest would be 5%—$100. Under usual conditions ten people, subscribers, would have $10.00 worth of dehydration during a season. This does not take into account voluntary contributions of products and voluntary labor.

To make a community plant pay expenses demands a dehydrator sufficiently large to carry many trayloads. I assume that under normal conditions a machine is used and not a kiln. Where people desire to have dehydrating done a charge of 10 cents a lb. wet is enough to cover the varied costs involved, such as conditioning, labelling, bagging, etc. If the product is to be prepared at the plant a charge of 25 cents is reasonable. Products that are prepared at home deteriorate in transit.

IF 5,000,000 housewives would dry over the stove one pound of soup mixture made from odds and ends of carrots, beans, peas, celery, potatoes, onions, and tomatoes it would result in making (with a little stock added,) some millions of plates of nourishing soup—a tremendous saving of little quantities which would otherwise go into the garbage can. Some saving!

The undercurrent of patriotic thinking permeating the American public to-day will sooner or later produce, as always, an adherence to what is good and right. Dehydrated foods have come to stay.

Equivalent Quantities of Dehydrated and Fresh Vegetables and Fruits to Supply Four People.

Produce	Wet or Green	Dehydrated
	Pounds	Ounces
Beets	2¾	2
Beet Greens	2	2
Cabbage	4	4⅔
Carrots	2	4
Celery (creamed)	4	4
Corn (sweet)	1	1+
Cauliflower	4	2+
Leeks (soup)	1½	2
Lima Beans (young)	2	4
Lima Beans (old)	2	4½
Mint and Herbs	2	⅔
Okra (creamed)	2	4
Onions	1½	2
Parsley (soup)	1	1½
Parsnips	3	6
Potatoes (sweet)	3	6
Peas (garden)	2	4
Potatoes	2¼	2
Spinach	2	2
String Beans (Green and Wax)	2	3
Swiss Chard	2	2
Soup mixture	1	1½
Summer Squash	6	6
Tomatoes	2½	2
Turnip	4	4
Apples	2	4
Strawberries	2¼	2
Red Raspberries	1	2⅛
Black Raspberries	1	2⅛
Blackberries	1	2
Bananas	1½	4
Huckleberries	2	4¼

Rehydrating or "Bringing Back" Vegetables and Fruits by Soaking in Water

Note: The water in which the dehydrated product is soaked must be used in the cooking. Keep in cool place while soaking and cook gently till tender.

Dehydrated	Hours for Soaking	Water
Beet Greens	4 to 5	cold
Beets	3 to 4	cold
Cabbage	3 to 4	cold
Carrots	3 to 3½	tepid
Cauliflower	3 to 4	tepid
Celery	3 to 4	tepid
Corn	over night	cold
Leeks	2	cold
Lima Beans	over night	cold
Mint and Herbs	2	tepid
Okra	4	cold
Onions	2 to 3	cold
Parsley	1	cold
Parsnips	5 to 6	tepid
Peas	over night	cold
Potatoes (White)	over night	cold
Potatoes (Sweet)	over night	cold
Spinach	1	cold
String beans (Green and wax)	3 to 4	cold
Swiss Chard	1	cold
Summer Squash	3 to 4	cold
Soup mixture	½	cold
Tomatoes	4 to 6	cold
Turnips	4 to 6	cold
Apples	4 to 6	cold
Bananas	½ to 1	cold
Huckleberries*	1 to 2	cold
Black Raspberries*	1 to 1½	cold
Red Raspberries*	1 to 1½	cold
Blackberries*	1 to 2	cold
Strawberries*	1 to 2	cold

*Berries should be brought to a boil slowly and boiled from 10 to 15 minutes. This for pies, puddings, jellies, and fruit juice.

Why Plant Fruit Trees This Fall? M. G. KAINS

Investment in Fruit Trees and Bushes is Permanent—Work Done Now Begins to Pay Dividends Just So Much Sooner

FRUIT plants yield larger and more attractive returns for the time and effort required to maintain them than do any other plants. And fruit is preëminently a home garden product. It can be had in far greater perfection when home grown than when produced for market, especially when the distance between the soil and the palate is great. Far finer varieties may be grown in the home garden than can be secured in the market.

It is well recognized that fruit supplies salts and acids which are not merely welcome to the palate but promotive of health. Less well known is the fact that fruit supplies sugars and "calories" (see July Garden Magazine, page 256).

Nuts are fruits which besides adding variety to the menu are valuable for the oil they supply, and oils are fats!

Fruits and nuts replace grains and meats in agreeable ways. They are therefore especially important in the nation's dietary during these war times. In the piping times of peace to come they will play a similar economic rôle.

No matter how small the garden, there is space for some kind of fruit. Strawberries, raspberries, currants, etc., require little room. Dwarf trees need scarcely more than the bushes. All these may be planted among the large fruit trees.

Apart from their food values fruit trees and shrubs may be effectively placed where merely ornamental trees and shrubs usually are. The fruit season may be made to extend throughout the year. Thoughtful choice of varieties and suitable storage facilities are all that is necessary. The chief obstacle to long keeping is appetite—but who would forego that?

"Everbearing" varieties of strawberries, raspberries, and long season varieties of currants, peaches, apples, etc., are especially adapted to home gardens. Many of them are of high quality and almost none of them can be bought in the markets.

Benefits of Fall Planting

NEVER in the history of this continent have the arguments in favor of fall planting applied so definitely as this autumn. Not only do the fundamental principles fit the case more snugly than ever before but two other factors have special bearing this year.

First, nursery stocks of many classes and varieties of plants are much less abundant than in previous years, thus reducing to the lowest limit the chances of securing desired kinds; and second, transportation conditions, though bad, are probably more favorable now than they will be next spring. So whoever orders his nursery stock delivered this fall, even though he must store it until spring, will doubtless have cause to congratulate himself, because much injury due to delays may be expected during the opening months of next season.

This factor of delay is one of the most serious obstacles to success in spring planting and one of the least important in the fall. The reason is that in the spring every additional hour between digging and replanting increases the activity of the plant but without supplying new food; whereas in the fall each hour makes the plant more and more dormant. In the former case the plant has greater and greater difficulty in making a start the longer it is out of the ground; in the latter it suffers less and is surer to take hold and be ready to grow when spring opens. In fact, fall-planted trees and shrubs begin to form roots and thus become established earlier than spring-planted ones could, and, according to my experience, this advantage continues, not only during the first season, but during subsequent years.

Another very strong point in favor of fall planting is that there is no question that the plants are freshly dug; they have not spent a minute in storage. Hence they are fuller of vitality than trees stored under even so-called ideal conditions. Spring-shipped nursery stock is very largely fall dug and winter stored. Yes, it should grow provided it has been properly handled during storage and shipment but my experience is that it does not compare with freshly dug stock. So strongly do I favor freshly dug stock that I would always order in the fall if I could count on three weeks or more of fairly open weather between planting time and the arrival of winter. Indeed, I would have the plants delivered in the fall even when I could not count on that much time because I could store them myself and thus be sure of having them ready for planting the moment spring conditions would warrant.

"Heel-in" If You Like

THERE is no difficulty about storing. The best method is heeling-in which is best managed as follows: choose a well-drained spot well away from buildings, hay stacks and other places in which mice might harbor. Dig a trench a foot or so deep making one side with a long slant. Unfasten the bundles of trees and shrubs and lay each specimen down at right angles to the trench with the trunk resting on the slope. Cover the roots with earth which must be tramped down well. Then cover a good part of the trunks also. Finally be sure that no straw or other material is left near by to serve as mouse headquarters; for mice will gnaw the bark and perhaps kill the trees. In spring take up the trees and plant them as soon as soil conditions will permit. This practice has been popular with fruit growers for perhaps centuries. It is thoroughly satisfactory.

No matter whether the planting is to be done in the fall—especially this year—or in the spring, order the stock now because there is no time like the early fall for getting exactly what is wanted. Nurserymen are then less likely to have sold out the rarer, finer kinds of which they usually have a smaller supply than of the commercial and so-called standard varieties.

The stock may be ordered reserved for spring

delivery but this is less desirable than having it delivered in the fall either for immediate planting or for heeling-in as just described.

What May be Deferred

THE only exceptions I would make to fall planting and perhaps also delivery would be such things as raspberries, blackberries, and other plants that are either very fibrous rooted or that do not fully ripen their twigs before cold weather. When placing an order it is well to insist that the leaves shall have fallen naturally and not been clipped or stripped from the twigs.

Trees whose leaves drop naturally may be safely planted in the fall; those whose leaves are stripped off are sure to suffer even if they don't die—which they perhaps usually do.

Young Trees Bear Best

IT IS a great mistake to buy old trees and large trees. Many people think that they should get quicker returns from large and old trees than from young and small ones. The strongest evidence that this is a mistake is the fact that commercial fruit growers invariably plant one-year-old peach trees, raspberry and blackberry bushes—never old ones—and that they never plant apple, pear, plum, cherry or quince trees older than two years while perhaps the majority strongly favor one-year trees. With currants, gooseberries, and grapes, the choice is about evenly divided between one-year and two-year plants.

Once the principles are understood no one will plant old or large stock unless this has been root pruned in the nursery, a process which doubles the cost. The older the tree the more it has become established and the greater must be the injury to its roots when dug, also the slower will it be to recover from such injuries. Losses among trees increase with the age of the nursery stock. One-year trees thrive best when transplanted because they suffer least when dug.

But there's another point. One-year trees are far more amenable to training than are older ones. They usually have no branches but when they have, these branches are generally well placed. In view of the advantages of having branches low—so low that the lowest touch the ground when bearing fruit—it is important to secure trees which are mere switches or "whips," as the nurserymen call them. The branches may then be developed where the grower wants them. On the other hand older trees have the branches already developed where the nurseryman has compelled them to develop in positions that are frequently undesirable from the grower's standpoint.

And There's Economy Too

BESIDES these important points are several others worth considering. For instance, young stock costs less than older. The express or freight charges are smaller. None but thrifty trees can be sold while young, the others being too small. Often the two-year and older trees were the runts when one year old. They were too small to sell then so were allowed to grow one or more years longer. It is a question if a runty tree ever develops into as thrifty or satisfactory a one as the tree that has developed sturdily from the start.

The above remarks have special reference to those trees known among the nursery trade as "cut-backs," trees that could not be sold at one year because too small, but were cut back to near the ground and started over again. They have roots one year or more older than the tops. Very rarely do they make satisfactory trees because their old roots are injured as seriously when dug up as if they were allowed to develop their tops for the same length of time. When buying stock, therefore, it is well to insist that the trees be genuine one-year stock, not cut-backs.

After Planting—What?

NEVER fear to plant in the fall, where ordinary precautions such as those enumerated are taken. One caution yet remains, however; protect the trees wherever there is danger of rabbits or mice gnawing the bark. The latter may be kept away by having the ground bare of anything that could serve as a harbor or nesting place. Also piling earth 6 inches high around the trunks and tramping it down firmly will help keep the mice away. A more positive protection against both mice and rabbits is galvanized hardware cloth or wire netting of ½-inch mesh. This may be cut in strips large enough to inclose the tree until the 6th or 8th year and high enough to extend above the reach of rabbits standing on their hind legs.

Starting Next Year's Food Garden

Professor Lumsden of Cornell Writing of His Own Home Garden Tells How He "Takes Time by the Forelock" and Gets an Early Start in the Spring. Adding Fertility and Defeating Disease

EVERY householder to-day is alive to the fact that the production of luscious vegetables materially assists in lowering the cost of living, as well as supplying the family with wholesome food which will keep the body in a healthy state. At this time while looking over the season's achievements I wish to emphasize the great importance of fall preparation of the soil, as one of the principal factors concerned in producing quantity as well as quality in vegetables. Also and by no means of less importance, the combating and eradication of many obnoxious insect pests, wire worms, larvae of the various beetles, grubs, and stem borers which of late years have manifested themselves in the gardens, and which are responsible for much damage done in the average garden. This hint is offered as an encouragement to any one who was not quite satisfied with results on a new garden this year. Now is the time to begin next season's garden!

By mid-summer the frames were occupied by cucumbers as a succession crop

Where, earlier, lettuce was growing, romaine was grown outside on the extension bed

I speak from experience in my own garden, a rectangle of 60 x 80 feet, in which all the work was done by myself aided occasionally by a young son, eleven years of age, who has fully acquired the garden spirit. The type of soil could be classified as a heavy clay, quite sticky and retentive in character—a very undesirable soil from a vegetable gardening standpoint.

Making a Stiff Soil Good

IN AMELIORATING this stubborn soil, the following was the *modus operandi:* During the fall of 1916, the date when the garden was taken over, a dressing of hydrated lime, two pounds to each 25 square feet of surface, was applied, together with a liberal dressing of coal ashes, passed through a screen with a ¼-inch mesh. The lime being used to correct acidity and flocculate the heavy soil, the coal ashes to improve its sanitary condition. This material was spaded under and well incorporated with the soil. The following spring a liberal dressing of well-decayed horse manure was added and spaded deeply into the soil, and previous to sowing the seeds, wood ashes, which are always saved from the hearth of the open fireplace, were applied, scattered evenly over the surface of the ground and worked in by aid of the garden rake. Unleached wood ashes are a valuable fertilizer for the garden, as they contain calcium oxide, magnesium oxide, potassium oxide, with small quantities of phosphoric acid, all valuable ingredients assisting in building up plant tissue.

During the year 1917 miscellaneous vegetables were grown with gratifying results. In the fall of that year the entire plot was given a dressing of two loads of decayed manure, supplemented with the decaying leaves from the trees surrounding the garden. Leaves are a good source of humus for the soil and it is to be regretted that so many persons in the suburbs of a city collect their leaves and burn them, destroying one of the valuable sources of humus indispensable to soil fertility. This material was spaded under and the surface of the ground left during the winter in a broken, uneven condition to allow the frost to act upon it, frost being a good ameliorator of soil, as well as a destroyer of many insect pests which hibernate in the ground. As early as the ground could be satisfactorily worked in the spring it was spaded over and then given a dressing of wood ashes applied at the rate of one pound to each 25 square feet of surface; this fertilizer was well worked into the surface soil.

A Hotbed For Early Crops

A HOTBED is an important addition to the home garden, as on it plants may be grown to maturity in the early spring or late autumn, and with such half-hardy and quick-maturing vegetables as lettuce and radishes, a gain of several weeks may be secured in the maturity of the crop.

Preparation was therefore made for a hotbed in the fall of the year 1917, by excavating the soil to a depth of 18 inches in the section southeast of the garage, where the frame was afterward placed. The hotbed was prepared in the usual manner, fermenting horse manure being used to furnish the medium for heat. The excavation was filled with the manure which extended above the excavation to a height of about 9 inches, it being broadened out over the surface of the ground in order that the

Gladiolus bulbs were planted and also other flowers where space was found between the vegetable crops

Scarlet Runner bean on the porch of the dwelling gave both shade and good crops for the table

frame would rest directly on the top of the manure. The hotbed was started about March 15 and consisted of five sashes; four sashes were devoted to the raising of Boston head lettuce, variety Hittinger's Belmont Forcing; the fifth, a separate sash, was used for early radishes.

The "Compost"

The soil for the hotbed was prepared in the fall and consisted of garden soil two parts with leaf soil (decayed leaves) one part, to which one quart of bone meal was added to each wheelbarrow of soil. This compost was placed under cover for the winter and was transferred to the hotbed after same had been made ready, covering the manure to the depth of about four inches. The lettuce plants which had been raised from seeds sown in flats (shallow boxes) about February 20, were planted at a distance of 8 in. x 8 in. apart and early in May the first heads were ready for table use. By the middle of the month the centre plants in each sash were taken out of the frame for use and a few seeds of cucumber, variety. Granite State (a cross between White Spine and the English Frame), were placed in each space. Early in June the cucumber plants were making rapid growth and the last cut of lettuce from the frame was made June 8. On June 15 the seeds of late cabbage, varieties Burpee's Surehead and Danish Ballhead, were sown in drills near the front of each sash. The cabbage plants were transplanted from the frame to the garden when large enough to handle. After the crop of radishes had been gathered from the separate sash, seeds of muskmelon, variety Farquhar's Honey Drop, were sown, which soon developed into good plants.

What The Garden Gave Me

IN THE small plot to the West of the hotbed, the first crops were radishes, spinach, and lettuce. The latter was sown for transplanting to other sections of the garden, the radishes and spinach being followed by a full crop of lettuce, variety Trianon Cos, with Gladiolus corms placed in between the rows, yielding a wealth of flowers after the lettuce was used. In the larger portion of the garden the following crops are grown: *Onions*, from sets: *lettuce*, variety Wayahead, Big Boston, Hanson, and The Deacon; *peas*, Gradus, Nott's Excelsior, and Senator; *cabbage*, variety Early Jersey Wakefield; *cauliflower*, Burpee's Dry Weather; *Onions*, from seed, Southport Large Red Globe, Large White Globe, and Large Yellow Globe; *beets*, Crosby's Egyptian, and Detroit Dark Red; *carrots*, French Forcing for early, Danver's Half-long for main crop; *chard*, Lucullus; *turnip*, Early White Milan; *kohl rabi*, Early White Vienna; *parsnip*, Long Smooth; *salsify*, Sandwich Island Mammoth; *pepper*, Chinese Giant; *beans*, Stringless Green Pod, Wardwell's Kidney Wax, Dwarf Horticultural, and Boston Pea; *tomato*, Earliana for early, Stone for main crop. (Potatoes, corn, shell beans, squash, ruta baga, endive and late celery were given a position in a vacant lot which had been cultivated and taken over for the season.) *Potatoes*, Irish Cobbler for early, Green Mountain for late; *corn*, Golden Bantam for early, Country Gentleman and Stowell's Evergreen for late; *shell beans*, Boston Pea, Red Kidney, and Dwarf Horticultural; *celery*, Golden Self-blanching for early, Winter Queen for late; *ruta baga*, Improved Purple Top; *squash*, Golden Summer Crook Neck, and Early White Bush Scalloped for early, Hubbard and The Delicious for late.

How to Succeed with Fall Planting

ALEX. LURIE
Shaw Botanical Garden, St. Louis Mo.

IT IS an established axiom that dormancy of the plant moved is a prime factor in the success of the operation. This condition is more readily obtained in the fall than in the spring, for many plants resume their root growth long before the buds show any indication of swelling.

Objections Overcome

THE usual objection raised to fall planting is the failure of plants to become established before the advent of winter, which, however, may be readily remedied by placing a sufficient mulch around new plantations thus preventing injury by "heaving."

Although the consideration of dormancy is of paramount importance, the planting operation in itself involves several factors essential for ultimate success. In the process of digging trees and shrubs an involuntary pruning of the roots takes place, which reduces their moisture and food-absorbing capacity. In order to counterbalance this deficiency the top must be cut back correspondingly, so as to reduce to a minimum the leaf surface.

Too often the seekers of novelties take stock in new and untried methods to their subsequent sorrow. As an example may be cited the advocacy of planting trees in just as small a hole as possible, throwing the soil loosely around the roots and then ramming until the ground quakes. Such a method may be expedient on a large scale but for a small garden it is best left alone. Usually a hole should be dug large enough to admit all the roots without crowding. The plant should then be placed at the same depth as originally grown and fine mellow soil gradually and compactly worked in around the roots. By bringing the soil particles into intimate contact with the feeding roots, the flow of food supply may be interrupted so little as to cause only a negligible check to the plant.

Watering vs. Tamping

AIR spaces which are ordinarily left around the roots when large lumps are thrown in are deleterious to proper development. The tamping of the soil is not recommended until a sufficient layer of soil covers the roots and prevents bruising. In fact tamping may be entirely eliminated by soaking the soil in around the roots with water. Watering, however, is only beneficial when done gradually as the roots are covered with soil. Delaying the application until after the entire hole is filled generally means a great waste of water without equivalent results. If done in this way the water runs off along the surface without penetrating to the roots and compacting the particles of soil around them. Copious watering should be practised whether the planting is done in the spring or fall.

In order to prevent excessive evaporation from the soil a loose dust mulch is left upon the surface. However better results may be obtained by placing a mulch of two to three inches of manure, litter, or other coarse material which will break up the capillarity of the soil and reduce evaporation. Too thick a mulch is not desirable because of the tendency of the roots to come too close to the surface, resulting in injury during the cold winter months.

The All-important Soil

NO DISCUSSION of planting problems, is complete without a few thoughts for the growing medium and the source of food supply—the soil. It is to be regretted that so little consideration is given to the future welfare of the permanent planting. Poor, thoroughly exhausted, often acid soils are used without any thought of previous preparation. What is more, no attention is paid to the natural habitat and requirements of the plants dealt with. It is only because of the remarkable adaptability of plants to abuse and adverse conditions that a greater percentage of failures is not recorded.

Making the Soil Safe for Plants

A PERFECTLY safe course to follow in ameliorating any soil is to see that it is well drained, then plow under well-rotted manure at the rate of 20 loads to the acre and add 1,000 pounds of slaked lime. Such a treatment should at least produce a well-drained, sweet, productive soil. It is useless to send a sample of soil to be tested for the elements in which it may be deficient. The soil expert is able to determine its acidity, texture, and the elements contained; but it is not yet possible to indicate what proportion of the constituents is available for plants as food. It is for this reason that the above simple treatment is recommended. The nature of the manure used is not of particular importance so long as it is not too fresh. Fresh manure has a tendency to burn the roots if in contact with them and its use should be avoided, especially when it is applied to each hole in planting.

How About Next Year's Seed? F. F. ROCKWELL

The Part You Can Do to Help the General Supply and Grow Better Things for Yourself

IN SEEDS, if anywhere in the world, quality comes first, and price is a matter of relatively little importance. As a matter of fact the home gardener and, in most cases, even a professional gardener, cannot grow his own seed in small quantities as cheaply as he can buy it; but the fact of interest at present is that he can produce some, at least, of his own seed. And there are good reasons why he should do so this year. In the first place, seed is "short" and anybody who will help in the production of seed will be helping along in a good cause.

What the Beginner Can Try

BUT," says the man who has never saved a seed in his life, "What can I grow? What can I expect to succeed with?"

The answer to that is like the answer to most garden questions: "It depends on conditions." But, under average conditions, a careful gardener should be able to save all of the following; Beans, corn, cucumber, lettuce, melons, peppers, potatoes, squash, tomatoes.

In addition to these, he can handle the root crops, such as beets, carrots, onions, parsnips, salsify, and turnips. Of course he will not get seed from these this fall, but a few roots selected now and carried over, and planted out in the spring, will yield the following year.

Cabbage, cauliflower, brussels sprouts, celery, and peas, are the least likely to give satisfactory results, as they require special climatic or other conditions which the average home gardener is not likely to meet.

While all of these things *may* be grown, the beginner will do much better to limit himself at first to a few things, and make a success of those before attempting to grow a large part of his own seeds. After he begins to get the "hang" of the art, he will find two big advantages in growing some of his own seeds, if he is a real garden enthusiast, and can take the time to do it. Many of the best of the standard varieties of to-day originated with private gardeners who never made any attempt to grow seeds commercially, but who had, for their own benefit and pleasure, learned how to save seeds, and studied out the general principles of plant selection and improvement.

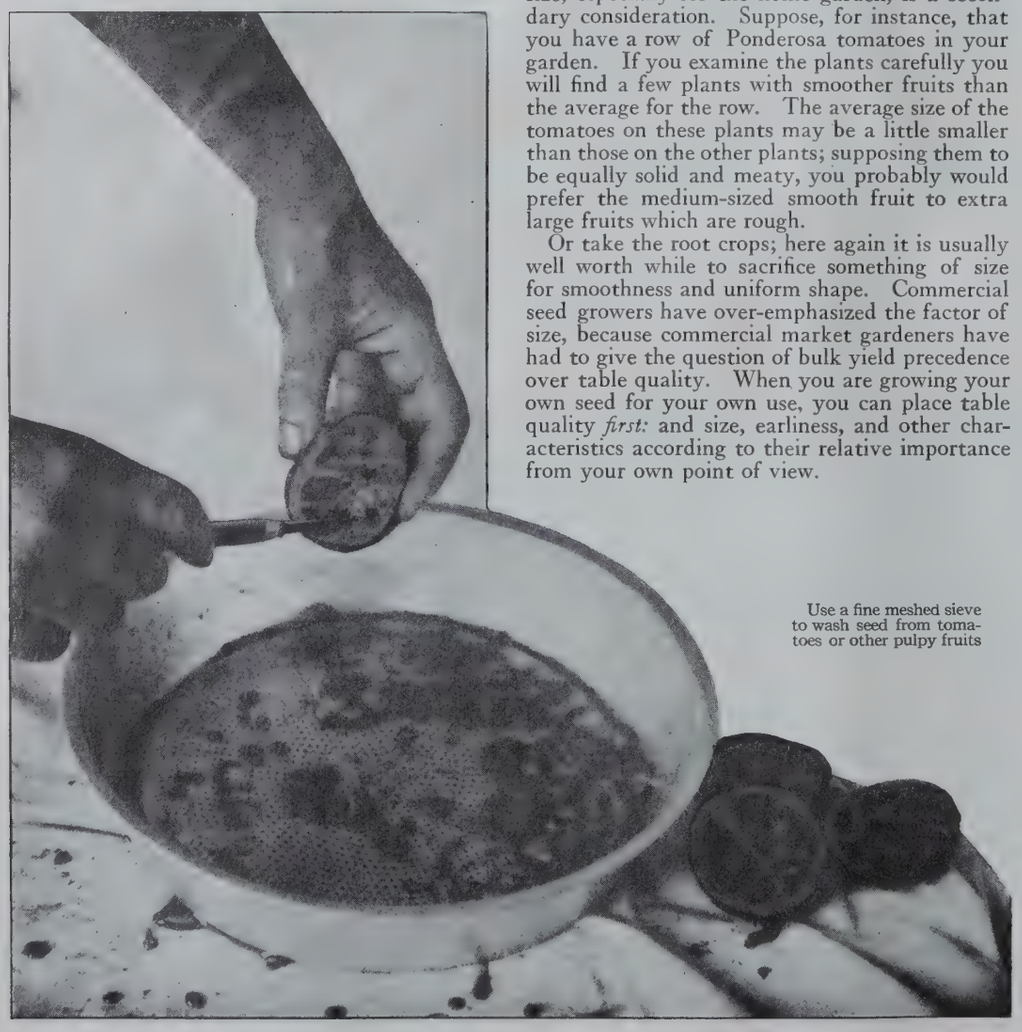
Another distinct advantage in home seed saving is the benefit of what is called "local adaptation." Everybody knows that some varieties do better in certain sections than others do. But *every individual plant of a given variety differs from its fellows;* and some individuals are better adapted to a particular locality than are others of the same variety. The capacity for local adaptation is much more marked in some things than in others, but in general is a very important factor.

What to Look for and What to Avoid in Saving Seed

THE first thing the beginner at seed saving must learn is that the *unit is the plant*, not a single fruit or flower therefrom. A single extra fine smooth tomato from a plant which bears a large number of rough fruits is not as good for seed purposes as a less handsome fruit from a plant which has *uniformly good* specimens. It is not a good method to select specimens for seed by taking them from the bins or crates after harvesting.

Perhaps the most common mistake the beginner makes is to select for size alone. Usually size, especially for the home garden, is a secondary consideration. Suppose, for instance, that you have a row of Ponderosa tomatoes in your garden. If you examine the plants carefully you will find a few plants with smoother fruits than the average for the row. The average size of the tomatoes on these plants may be a little smaller than those on the other plants; supposing them to be equally solid and meaty, you probably would prefer the medium-sized smooth fruit to extra large fruits which are rough.

Or take the root crops; here again it is usually well worth while to sacrifice something of size for smoothness and uniform shape. Commercial seed growers have over-emphasized the factor of size, because commercial market gardeners have had to give the question of bulk yield precedence over table quality. When you are growing your own seed for your own use, you can place table quality *first:* and size, earliness, and other characteristics according to their relative importance from your own point of view.



Use a fine meshed sieve to wash seed from tomatoes or other pulpy fruits

An ideal Golden Bantam corn plant. Consider the whole plant when saving for seed

What to Do With the Different Crops

WHILE the general principles of selecting the plants to save seed from are the same, the handling of the different vegetables to get the seed in proper condition varies.

Beans. Mark best plants and leave pods to mature. Gather pods as they dry—if left on vines where weather conditions are unfavorable the earlier pods may be spoiled before the later ones mature. Use pods free from rust or anthracnose. Store pods in dry airy place until all gathered. Shell out and spread in thin layer until perfectly dry. Put away in tight containers.

Corn. Select ears from best stalks as they mature. Mark carefully and leave until dry. (Husk can be held in place after examining ear by elastic bands.) Select ears well filled out over tips, and of even shape clear to butts. Dry out under cover and store in a warm dry place, such as house attic.

Cucumber. Mark a few of the best shaped fruits as they mature, and leave on the vines until they fully ripen. Then cut, remove the seed, wash through a sieve to remove the pulp and fleshy fibres, and spread out in the sun, under cover, in a thin layer to dry, stirring occasionally to keep from drying in lumps.

Egg-Plant. Let one or two fruits attain full growth to mature the seed. The fruits may then be used, the seed being carefully saved, washed, and dried.

Lettuce. Allow some of the best heads to remain, and when they begin to "shoot" to seed, support by means of stakes and twine. Hard heading varieties may have to be "crossed," or cut both ways on top, to let the seed spike through readily. When the seed heads begin to "fluff" and turn white, like a thistle, cut off the tops, and cure them in a dry airy place until the seed is fully ripe and can be rubbed out readily.

Melons. As the fruits are not used until fully ripe, the seed may be saved as they are used at table. Stake one or two of the strongest, most prolific vines, and save the seed from the most perfect melons from them.

Peas. Allow some of the pods to mature fully and nearly ripen on the vines, and gather as they begin to dry. Store in a dry airy place and shell out as soon as hard. It is difficult to get good pea seed in most localities, as the pods fail to mature or are attacked by mildew.

Peppers. Save seed from mature fruits of the best plants, wash out and dry.

Potatoes. Mark a number of the best looking hills, especially those which have seemed to be most resistant to blight or insects. Dig by hand, keeping each hill separate, and then take only the best hills—occasionally a big top will have few or small tubers. Let these cure in the sun until thoroughly "greened" (this will spoil them for cooking, but they will keep better for seed.) Store in a cold not too dry place.

Squash and Pumpkins. Treat in same way as melons.

Tomatoes. Choose carefully the best plant or plants, and save a few fruits. Pick when fully ripe, cut open, and remove seed with as little of the flesh and pulp as possible. Wash through a fine mesh sieve; or put the pulp and seeds in a glass jar for two days to ferment, and then wash the seed out in clean water. Don't leave too long or the seed will begin to germinate, and spoil.

Selecting Roots for Next Year

BEETS, carrots, parsnips, salsify, and turnips are all handled in much the same way. Pick out smooth, medium sized, and preferably not too fully matured roots, when digging in the fall. In selecting, shape and smoothness should count for more than size. Store either in a good cellar, or in a pit in a well-drained spot outside, where they will not freeze, but will be kept as evenly cold as possible through the winter.

Early in the spring set these roots out in well-prepared, well-fertilized soil, planting them quite deep, and hilling up slightly as the root-stalks develop. They will throw up more or less loose-branching heads, something like the lettuce plants illustrated herewith, and may, if only a few are grown, require supporting to keep them upright. When the seed develops, but before it is ripe enough to begin to shatter out, cut the tops and store where they will get plenty of air, and if possible sunshine, until "cured." They may be conveniently handled on small square drying sheets of muslin or any cheap material, which can be taken out and spread in the sunshine in good drying weather, and put back under cover at night.

Grand Rapids lettuce with developed seed stalks supported by stakes and ties

Bean plant selected for seed because of prolific character

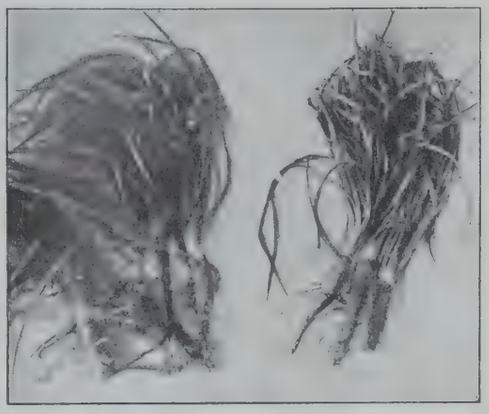
Such seeds as may be knocked out will be saved in the sheets; when the tops are thoroughly dry the remainder may be rubbed out, and stored away.

Onions. Select a few of the most perfect and solidest bulbs, and store in a dry, cool place. Set out in the spring, planting quite deep, and several inches apart in the row. Hill up well, as the tall seed stalks develop. If necessary, stakes and twine should be used to keep them upright. When the seed has begun to ripen, as indicated by its turning black and hard and dry in the seed head, but before it begins to scatter, cut the stalks, finish drying on a sheet, and then rub out the seed.

Cabbage. This is one of the least satisfactory of vegetables to try to grow a home supply of seed of, but the method is simple. Select a few perfect heads in the fall; take them up, roots and all, and store in a trench or pit, as for ordinary winter storage. In the spring, set them deep in well-prepared soil. "Cross" the heads if the seed stalks have any difficulty in breaking through, support the stalks; cut the tops when the seed pods—which resemble those of a wild turnip—begin to turn yellow; finish drying and rub the seed out.

AFTER getting the seed of the various vegetables mentioned, it should be kept in cloth or paper bags, in a dry place safe from mice, until there is time to clean it. This can be done in a small way, by blowing the chaff and light seed out as the seed is poured from one hand to the other, by floating it in water, or by working it through a sieve of suitable size.

Of course the root crops cannot cross the first year, so any of them can be saved. Corn will "mix" readily, if two varieties near each other come into tassle at the same time. Cucumbers, melons, and squash will *not* cross, in spite of the popular assumption that they will, but the different varieties of each mix readily. Lettuce and tomatoes are usually safe, as they will not cross unless in quite close proximity, and more than one variety in flower at the same time.



Salsify. On the right smooth roots worth growing for seed. Those on the left discarded

Storing the Crops for Winter Use

It Is Quite Simple if Each Crop Is Given Its Proper Temperature, Says Professor R. L. Kirkpatrick, of Fort Collins, Colo., Who Has Made a Study of Vegetable Crop Conservation for War Gardens

FOOD Preparedness" demands that all available garden crops be enlisted in the food conservation campaign of this coming winter, that is, that they be stored in the cellar or "placed in the trench."

Requirements for Successful Storage

STRICT attention must be given to four requirements if stored crops are to keep well during winter, namely, (1) temperature, (2) moisture, (3) ventilation, and (4) condition of the produce to be stored.

Temperature of the store room for all root crops as well as for apples and potatoes should range slightly above freezing, preferably from 32°-36° Fahrenheit. Salsify and parsnips are not injured at freezing temperature and for this reason they are usually allowed to remain in their allotted rows.

Sweet potatoes, squashes, and pumpkins, on the other hand, are easily injured by low temperatures and should therefore be stored at or slightly above 55° Fahrenheit. While a satisfactory temperature for storing the root crops, as well as potatoes and apples, may be had with little difficulty in out of door storage pits or trench, it must in the average basement or cellar be provided for by means of an especially constructed room.

A Storage Room

TO CONSTRUCT a special storage room having the desired temperature choose that part of the basement as far away from the furnace as possible in order that it be the coolest room available. Plan in such a way that the finished room will have one or more outside windows to provide ventilation, which aids greatly in controlling the temperature and removing gases given off from the stored produce. Construct a double 6 to 10 inch wall for separating the storage room from the remaining cellar or basement. Use hollow bricks if they are available, placing a coat of cement plastering on either side. In case hollow brick and cement are unavailable use a double layer of boards separated from each other by building paper and nailed to either side of 4 or 6 inch studdings. Provide double close-fitting doors to the storage room entrance—that is, arrange one door opening in and the other opening out.

Peach basket placed in the mound for protection from wind will be covered with manure later

In order that the air of the room may be properly moist avoid putting down a concrete floor. A hard dirt floor holds moisture to better advantage and is especially desirable where such crops as celery or endive are to continue growth in the storeroom after having been transplanted in loose soil or sand. Moisture content of the storeroom may be determined during winter from observing the condition of the root crops. Shrivelled skins suggest too little moisture present. An occasional sprinkling of the sand or leaves covering the produce will provide the needed moisture in the storeroom.

To insure sufficient ventilation arrange for opening an outside window and as an aid to controlling the temperature where produce is to be stored in considerable quantities, provide a fresh air intake under an opposite side wall if possible in order to keep the air of the room renewed occasionally. A large drain properly guarded by wire of some sort at the entrance will answer, instead, for a small room. Ventilating flues should range between eight and twelve inches square for each 1,000 cubic feet of storeroom area.

Condition of Produce

CHOOSE as nearly perfect specimens as possible for placing in storage. Quality cannot be added to stored crops except as maturity may continue or as the bleaching process may go on, as with apples or with celery. Handle all produce carefully as bruised spots means broken down tissues which are "toe holds" for decay which once started soon spreads throughout any lot of produce especially where the skins may be punctured. Slightly immature crops keep best.

Handling Various Crops

ROOT CROPS: (*Beets, carrots, kohlrabi, turnips, and winter radishes.*) Select the best roots available, pull before killing frost, remove tops leaving 1½ inches of leaf stems attached to prevent bleeding. Place on a well-drained site and cover with tops removed from roots, leaves, straw, or garden refuse until danger of freezing makes storing advisable. If the roots are to be kept in cellar storage arrange them in a cone-shaped heap in one corner or along one side, each kind separately, and cover with sand, loose soil, or clean leaves raked from the lawn or woods. If desired, space may be saved by placing each kind of roots in an old box or an old tub rather than in heaps on the floor.

Storing cabbage in a trench three heads across, roots upward. Packed shinglewise

To store roots out of doors choose a well-drained sloping spot as sheltered as possible. Dig out a pit six or eight inches deep opening the same with the slope to facilitate drainage. Govern size and shape of the pit or trench by the amount of produce to be stored. Several kinds of vegetables may be placed in a long trench, one kind being separated from the other by a layer of clean straw.

Line the pit or trench to a depth of 6 or 8 inches with a layer of straw or marsh hay, placing an exceptionally large tuft in the drainage outlet. Heap the roots in the lined pit in a cone-shaped fashion and cover them with a 6 or 8 inch layer of straw, marsh hay, or leaves. Cover the mound with a layer of earth several inches deep allowing a tuft of straw or an inverted hamper filled loosely with straw to protrude at the top. As cold weather advances place on a layer of strawy manure of sufficient depth to prevent freezing.

Cabbage. Choose firm heads. For storing in the cellar cut heads from the stalks leaving several loose leaves attached to each. Invert the heads on boards suspended from joists overhead or laid on the floor of the storeroom.

For storing *out of doors* in the orchard or woods remove heads from stalks as for placing in cellar and invert each shingle-fashion on a layer of straw marsh hay or leaves raked up on a well-drained spot. Cover inverted heads with sufficient straw or leaves to prevent freezing or plan to take heads while frozen and thaw them out gradually before they are used. Once frozen they should be given additional covering to prevent alternate thawing and freezing which causes them to become soft and sponge like. To store cabbage *in trenches* pull each head with stalk attached. Invert heads in a trench dug and lined as directed with the pit or trench for root crops. Plan the width of the trench to accommodate three heads crosswise with two and one respectively fitted in alternately on top. Cover as directed with root crops.

Covered with straw and ready for the soil. Note ventilating pipe

Lining pit with several inches of straw or leaves before crops are put in

Potatoes may be handled as are root crops except that they need not be covered with soil or sand in cellar storages. Store in shallow boxes or crates away from the light to prevent greening of the tubers. Allow the newly dug potatoes to cool at least overnight before placing them in storage.

Apples. Pick when properly matured and allow the fruit picked one day to remain in the orchard overnight to become sufficiently cooled for storing the following morning. Store in the cellar or cave in boxes or in bin where the temperature may be held as uniformly near 32° as possible. Plan to maintain the desired temperature by opening the outside windows at night, only, during the fall of the year. If stored in boxes air spaces must be left between the rows of boxes. Stored in bulk or bins the fruit must be protected from the dirt floor and walls. Clean straw or raised slats will suffice as a floor covering.

To store apples *in pits* as root crops caution is needed that only clean straw and soil are used since apples absorb odors easily thus becoming tainted.

Celery and Endive may be easily blanched for use in cellar or coldframe storage. Remove the stalks of celery from the plot where grown, each with a clump of soil attached. Place stalks upright as close to each other as possible on the cellar floor working sufficient loose soil or sand among the stalks to cover the roots well. Water as needed to prevent wilting, taking care that water is poured in between the stalks rather than over them. Leaves must be kept dry. Celery stored in this way in late fall blanches quickly and holds in good condition until February or March. Where cellar space is not available the coldframe will answer provided sufficient covering is placed over the sash to keep out light and to prevent freezing.

Endive handles well similarly if care is taken that less soil is shaken from the roots in moving the crop from garden to storeroom. Excellent blanched endive may be had for Christmas dinner from plants taken in before the first killing frost of autumn. Parsley may be handled in the same way.

Onions. Since onions keep best at a temperature of 33° to 40° where the air is fairly dry it is best to arrange for storing any surplus of this crop in the attic where the temperature does not go below freezing. In case space in the attic is not available place the bulbs in ordinary market baskets suspended from nails driven in the joists of the ordinary storeroom in a cool place where the air circulates readily and is as dry as possible.

Tomatoes. While tomatoes cannot be kept for winter and spring use, their season may be lengthened into late fall by giving attention to several methods of temporary storage. Pick partially ripened fruits before killing frost, pack them on a layer of clean straw in the coldframe, cover with an additional layer of straw, one or two inches thick under the coldframe sash. Where frame enclosure and sash are not available expose partially ripened fruit in the basement, kitchen or workshop windows to the sun's rays or pull the vines containing fruits and sus-

Beets now ready for winter storage. They have been piled here in preparation

pend each from sleeper or other support in basement or outhouses.

Rhubarb. Choose the largest, most vigorous plants of rhubarb for storing, or forcing in the cellar or basement. Previous to the first freeze of late fall, usually about December first, lift roots of the plants desired, preferably designated by stakes of some sort, each with a clump of soil attached. Allow roots lifted to remain near the plot or move them to a convenient place where they are subject to the first freeze of winter. Take frozen roots to the cellar and place them in an easily darkened corner in an upright position as close to each other as possible. Cover to a depth of two or three inches with light soil working same down well among the roots. Water thoroughly and shut out all light by means of a black cloth. Keep the soil fairly moist and harvest the forced crops as stems attain the desired size. Harvesting may usually start in from 3 to 5 weeks following setting. Stems of forced rhubarb will be very crisp and tender with little or no green leaf attached.

Parsnips and Salsify. Since parsnips and salsify are not injured by freezing they may be left in rows in the garden for late spring use. In case they are desired for table use or market during winter, dig and handle as other root crops in the cellar store room.

Sweet Potatos, Pumpkins, and Squashes. These three crops keep best at practically the same temperature 50-55° and with a relatively low amount of moisture present. All must be handled with extreme care to prevent bruising. Avoid placing in storage sweet potatoes which have been nipped by frost. In case light frost gets the crop cut and remove vines from the plot and dig the tubers at the earliest convenience following. Store temporarily in an outhouse where an old heating stove may be used if necessary to keep the temperature at approximately 75° for 10 days' time or until curing or sweating has finished. Place the crop in a dry storeroom where the temperature may be held at or near 55° throughout the winter. Available space in an ordinary furnace room answers satisfactorily.

Pumpkins and squashes each handled carefully from field to storeroom keep well laid on shelves near the furnace where the temperature may be held as for sweet potatoes. Use caution that stems be not severed from the fruits in harvesting and avoid storing the fruits in piles or heaps. Rather, see that they rest in single layers.

Nut Trees as Food Producers

ROBERT T. MORRIS New York

THE reason for nut trees not being planted more largely in this country is similar to the reason for the automobile not being in use twenty-five years ago: People had not thought much about the subject. The time is coming when nut trees will bear as important a relation to our food supply as the automobile does to transportation. The reason for that is because nut trees in their great range of food supply are capable of giving us enjoyable calories which will replace in substantial degree our nitrogenous and starchy foods of the old-fashioned sort.

My interest in the subject is not that of an erratic, but only that of a red squirrel who knows a good thing when he sees it. When the era of nut trees has arrived we may have Professor J. Russell Smith's three-story garden if you like—trees overhead, vegetables on the ground floor, and mushrooms in the cellar beneath. That, however, will belong to the days when population is so great that we shall seriously consider Dr. Oliver Wendell Holmes's idea that people must all sit in each other's laps.

VARIOUS KINDS OF WALNUTS.—Because of their variation, Walnuts should be bought as definitely as apples or other orchard fruit. From left hand top reading across: Prolific, Regal, Bijou, Paradox, Frangueth, Mayeth, Mandshurica, Nigra, Chester and Sorrento. Reduced about one-third

As a practical matter of fact nuts of the highly nitrogenous type are at present used chiefly as a luxury, although they are entering more and more into food combinations. Starchy nuts in some parts of the world furnish the chief food supply; for example, the chestnuts of Italy and of Japan. Nuts of the starchy and oily type, like those of some of the Pine trees, furnish an important food supply in parts of South America and Australia and of our Southwest. The British Government has reserved one forest of Bunya Bunya Pines, thirty miles in length by twelve miles in width, for food purposes; and in the mountains of Chili forests of Imbricated Pines have furnished the cause for competitive warfare between Indian tribes for centuries.

One reason why the worn-out pastures of New York and New England are not yielding fifty dollars' worth of nuts per acre per year is because the effort required would be so much less than the effort required for obtaining twenty-five dollars per year per acre for crops of old-fashioned foodstuffs. The proposition is such an easy one that men look askance at it. Down in Louisiana they tell of an old colored man who had always worked very hard at raising cotton and corn on his little property and managed to give his family a fair living during his days of greatest activity. Now, however, that he is old and all crippled up with rheumatism and no longer able to work, six pecan trees which he planted bring his family three times as large an income as he was able to obtain when laboring. The same story might as well come out of New England at some later day. Many a farmer has to work so hard in order to pay the interest on his mortgage that he has no time to stop and think. If he has the luck to break a leg, or otherwise become confined in such a way that he must think, he can easily enough obtain a first-rate income without much work, from nut trees. The range through chestnuts, walnuts, hickories, pines, and hazels offers endless variety for engaging one's interest. There are perhaps no food crops of any sort which will furnish larger average yield to the acre than nut crops, and if the Prussian Government were to devote itself to intensive cultivation of this sort of food supply, there might be little hunger for expansion; incidentally, any lust for killing would find ample outlet among the bugs and blights.

Aside from the utility features of nut trees for food supply purposes we may return to the old Greek ideal of combining beauty with utility, and nut trees ranging from a Sugar Pine two hundred and fifty feet in height down to the Alder-leaved Chestnut with its glistening branches trailing over the ground furnish opportunity for beautifying large landscape and small garden as they have never been beautified before by the hand of man. At the present time, the nurserymen furnish annually millions of bunches of leaves to customers who call for the Poplars and Willows and Maples which are worthy enough of respect on the ground of beauty alone, but which furnish no lead for the keel when we are sailing toward a utility goal. And there are a number of nurserymen who make a specialty of growing grafted and otherwise selected nut trees of the most valuable sorts.

Food Values of Nuts

IN connection with the foregoing the accompanying table of comparisons should be stimulative to the planter. Nut trees are useful also as ornamentals and surely it is not necessary to make a special plea for "Killing two birds with one stone" as the popular saying runs.

	Per cent. Protein	Per cent. Fat.	Fuel value per cent. Calories
Almond	21.4	54.4	2,895
Beechnut	21.8	49.9	2,740
Brazilnut	17.4	65.0	3,120
Butternut	27.9	61.2	3,370
Chestnut, fresh	6.4	6.0	1,140
Chestnut, dry	10.7	7.8	1,840
Cocoanut	6.6	56.2	2,805
Filbert	16.5	64.0	3,100
Hickorynut	15.4	67.4	3,345
Peanut	29.8	43.5	2,610
Pecan	12.1	70.7	3,300
Pinenut	33.9	48.2	2,710
Pistachio	22.6	54.5	3,250
Walnut	18.2	60.7	3,075
Round steak	19.8	13.6	950
Cheddar cheese	27.7	36.8	2,145
Eggs, boiled	12.4	10.7	680
Wheat flour	11.4	1.0	1,650
White bread	9.2	1.3	1,215
Beans, dried	22.5	1.8	1,605
Potatoes	2.2	.1	385
Apples	.4	.5	290
Raisins	2.6	3.3	1,605

Fall Planting for Spring Flowers

ISABELLA PENDLETON
Ohio

Important Part that the Bulbs Play in Early Spring—Planting Now for a Succession of Bloom in Proper Harmony

WHAT entrancing work it is to plan bulb effects for the spring garden! These "rainbow creatures" lend themselves to many, many forms of colorful expression. Graceful drifts of Narcissus may follow the ups and downs of undulating stretches of ground. With the ever-changing light and shade on this sea of ivory white and yellow, I am put in mind of the sand dunes. Darwin Tulip studies near still water inspire many charming arrangements, as mirrored effects never fail to charm. Groups of Muscari (Grape Hyacinth), Tulip Clusiana, and the triandrus form of Narcissus are happily placed in a rock garden. Breeder Tulips planted in front of shrubbery belts open the door to varied color combinations. And is there anything more alluring than the flowering bulb tableaux in the old fashioned hardy border? These and many more fantastic opportunities are awaiting the flower gardener who is eager to plant a bulb garden this fall.

IT MAY interest the reader to follow a bulb planting plan through each flowering season. The first significant spring picture comes in late March and early May. Crocus in variety, Tulip Kaufmanniana (Water-lily Tulip), Scillas, Chionodoxa (Glory-of-the-snow), Galanthus (Snowdrop), Iris recticulata, early Daffodils, Fritillaria imperialis (Crown Imperial), and Hyacinths take the centre of the stage.

Let us walk through an early spring garden of my acquaintance. I am looking at the groups of Red Cedars (Juniperus virginiana) interspaced with fluffy White Pines (Pinus Strobus). In front of this grayish green sheen Magnolia stellata points myriads of white faces toward the spring sunshine. Underneath these saucy bushes is a carpet of blue purple and gold, Scilla sibirica, Crocus Hero and Matador, and Tulip Kaufmanniana (orange suffused with salmon pink). In another nook Crown Imperials with their pendant cups of yellow and Indian red are stunning against Forsythia which at this moment is a shower of gold. Chionodoxa, early Daffodils and purple Hyacinths cover the ground.

IN LATER April and early May the landscape is more in tune with the spirit of spring. Here evergreens are not so necessary as in the preceding season. The bronzy tints of the young leaves and the gay blossoms of the flowering trees form an exquisite setting for the bulb groupings. Weeping Cherries (Prunus subhirtella pendula) bloom at the same time with salmon-pink Azalea mollis; near by is a mass of mauve Phlox divaricata. Through this lavender sheen bloom Narcissus Sea Gull, Flamingo, and Salmonetta, and Tulips Primrose Queen and White Hawk. A stronger note is supplied in orange Tulip Thomas Moore. Another group blazes with scarlet Japanese Maples bursting into leaf just as the rose Tulip Proserpine and the black purple tulip Wouverman open their cups of wondrous beauty. The purple-leaved plum (Prunus cerasifera Pissardi) and a haze of pink peach blossoms (Prunus persica flore pleno) in the distance satisfy the whims of the foreground display.

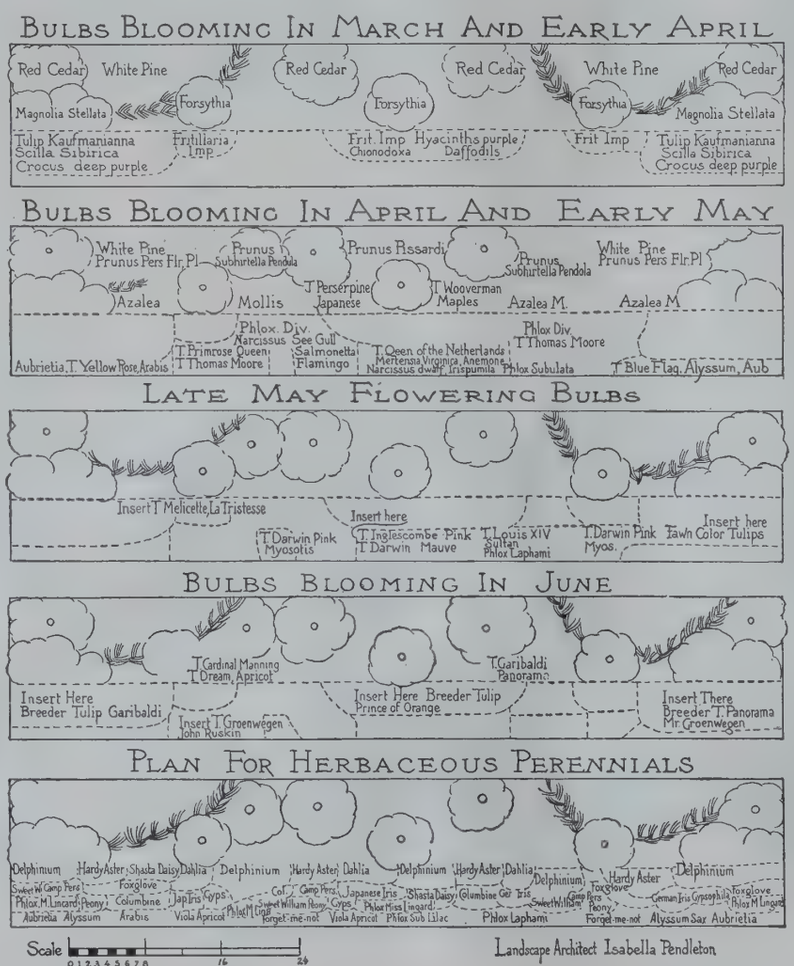
As groundwork, Aubrietia and Alyssum saxatile with double Arabis are used. Through these break tall heads of the semi-double Tulip Blue Flag and the gold and orange tinted double Tulip Yellow Rose. This latter hangs its head, and the golden flowers resting on the white Arabis look more beautiful for the surrounding white sprays.

Near the end of the border one group is planned of many colors and many varieties. This tends to unify the planting scheme. Narcissus Mrs. Langtry and the Poetaz strain intermingle among pale pink Tulip Queen of the Netherlands. A suggestion of sky-blue Mertensia virginica (Virginia Cowslip), Anemones blanda and appenina are followed by the mauve Anemone pulsatilla; nearer the edge of the border the dwarf forms of Narcissus (triandrus albus, cyclamineus Queen of Spain), and Grape Hyacinth (Muscari botryoides) are sprinkled among rich purple Iris pumila and Phlox subulata lilacea.

THE late May flowering effects follow. The softness of color of the late Tulips fastens a spell upon the lover of garden beauty. There are certain of these which should be in every garden; the British Tulipa sylvestris with its gracefully drooping head, Tulipa Didieri alba sweet-scented white, and Tulip retroflexa a yellow with recurved lily-like petals. Mingled with pale blue Indian Quamash (Camassia esculenta) and Star of Bethlehem (Ornithogalum arabicum) white with blackish pistil, the group is charming! Although not quite so apparent, the lily form is seen in Tulipa elegans and in a slighter degree in Tulip Picotee and Tulipa Clusiana. The latter has unusual charm.

Tulips Inglescombe Pink, Suzon, the creamy vitellina, and Yellow Perfection are gorgeous with the cool mauves of Darwin Tulips Ewbank, Melicette, La Tristesse and with the bronzy tones enjoyed in Sultan and Louis XIV. The beauty of these is enhanced by skillfully disposed masses of blue Phlox Laphami. If placed near a red mauve the beauty of all is spoiled.

Away from these I planted Clara Butt, Nauticus and Mrs. Potter Palmer Tulips carpeting the ground with Forget-me-not. If the fawn-colored Tulips like Mr. Groenwegen, Garibaldi, and Panorama are chosen, plants of Viola Apricot, Pansies, and Primroses will help the effect very much. Viola Apricot is a gem, there is no salmon-pink quite like it!



These diagrams represent the flowering effects for the same border and if superimposed the complete planting plan will be produced

THE next period introduces Breeder Tulips and Iris. The mahogany-colored John Ruskin and the wine-red Cardinal Manning look well with rich purple German Iris. To offset these deeper tones Tulip Dream, a mauve, and Apricot supply the necessary diversion of color. Jaune d'Œuf and Prince of Orange may be used here, as a dash of orange with this group is irresistible.

THERE are always a few places in the garden which should be saved for accents, novelties, gems of the collection or whatever you wish to name them. Eremurus blooms in June and is a rare ornament for the border. The flowering stalks shading from pink to yellow are seven feet high; planted with Iris pallida the effect is stunning!

The Butterfly Tulip of California (Calochortus venustus) is well named, for the brilliantly colored petals with eye-like spots and other markings are suggestive of butterfly wings. Calochortus will require winter protection. Anemones coronaria and "St. Brigid" may be planted in a coldframe and set out in the garden in early spring. These come in the richest tints of blue, red and purple and therefore care must be taken to place them harmoniously.

Fritillaria meleagris (Guinea-hen-flower) is attractive planted with Muscari (grape hyacinth). The spotted brown and purple flowers of the Fritillaria supply an interesting neutral note to the flowering groups. This takes us pretty well through the spring season of flowering bulbs. That does not mean, however, that the border is colorless for the remaining summer months. On the contrary perennials (which may well be planted in the fall and mulched) bloom and cover the spaces occupied by the bulbs. The June picture continues with Columbine, Foxglove, Peach-leaved Bell-flower, Sweet William, and Delphinium.

In the hot weeks of summer white Gypsophila paniculata, Phlox Miss Lingard, Shasta Daisies and Salvia farinacea satisfy the eye. Then in fall, Dahlias—Geisha, Countess of Londsale, Jack; and hardy Asters—nova-angliae, amellus—bloom until frost. Thus the garden is a delight from the earliest peep of spring until quite late fall.

Don't Hurry Winter Protection of Roses

S. C. HUBBARD

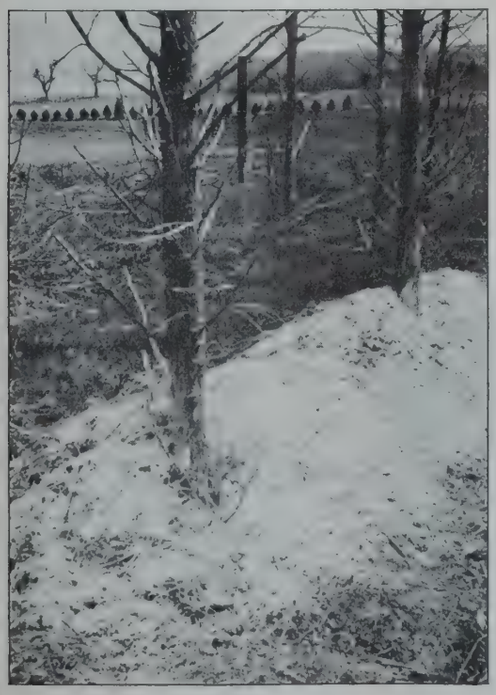
After Practical Experience in Roses, in Three Different States, Mr. Hubbard Presents a Working Plan for General Adoption—The Mistaken Idea that Plants Need Warmth in Winter the Cause of Untold Losses

THE fact that many of the most delicately tinted Hybrid Tea Roses will not survive the winters of the latitude of northwestern New York has discouraged some gardeners from planting them. Yet everybody wants these flowers and not planting them means they are losing the pleasure of many of the most beautiful not alone of Roses, but of all the flowers of the garden.

It is most discouraging to find, when spring comes, only a few stubs of what, in the fall, was a collection of fine, healthy Rose plants. Little wonder, then, that despair leads to the larger planting of the Hybrid Perpetuals and Rugosas as being something of a more hardy nature.

But the fact remains that although many of the Hybrid Teas will freeze to within a few inches of the ground, most of them (with proper protection) can be made to bloom profusely from year to year.

Many people have the erroneous impression that the protection is to keep the plants warm. This is indeed far from correct. The main object in covering the plants is to *keep them cold*—that is, to prevent thawing and freezing as much as possible during the "soft spells" in winter. The warm windy days of March are especially dangerous to the proper wintering of Roses. If we could freeze our plants in December, and have them remain that way until the latter part of March or first of April, there would be no need of covering of any sort! The finest bed of Roses that I have ever seen was a planting of twenty-five Killarney Queen and Double White Killarney on the north shore of Lake Winnepesaukee in New Hampshire. The house sheltered them from the cold north winds and Nature did the rest by burying them in about three or four feet of snow from the second week in November until the middle or last of April. These Roses came through every winter with more than two feet of good, healthy wood.



Ramblers are best laid down and covered with soil

Conditions That Aid Hardiness

FOR the reason already stated it is obvious that our covering must be done *as late as possible*. Early protection is often the cause of the plants becoming too warm and starting, which, when severe weather does come, means a considerable loss of vitality to the stock. Best results are obtained by covering just before the *ground* freezes solidly. Two or three good freezes do more to insure the carrying of the plants through the winter than any amount of early protection.

Hybrid Teas properly mounded with earth and ready to receive the final covering of manure after the mound is frozen. This protects Teas in the extreme north

The first factor in properly wintering Roses is having the wood thoroughly ripened. Canes that are full of sap, when cold weather strikes them, will not survive even a mild winter. The freezing of the sap causes expansion which bursts the outer bark and leaves the wood exposed to the weather.

There are several ways in which one may hasten, or at least aid, the ripening processs. The most important is *drainage*. If the soil is heavy and water-logged, then the roots are full of sap and continue sending it up the canes. It is a law of physics that "two things cannot occupy the same place at the same time." As applied here, it means that as long as the roots are full of sap, they cannot take back that which is in the canes. Therefore, look to your drainage!

The next aid is in keeping the food away from the plants so that no more growth will be made after the middle of September. If the last mulch is applied in the middle of July, there will be little danger of soft growth continuing into autumn. *Cultivation should be discontinued after the last of August.* Working the soil later than that tends to stimulate growth which is not wanted at this time of year. If weeds grow, pull them out of course, but do not use a hoe.

There is still another method which has proved beneficial in ripening the wood of Ramblers: After the first light frosts, cut back about a foot of growth from each cane. This checks the growth and causes the wood to harden. By the time it has hardened and the eyes have developed, most of the sap has been utilized and there is little danger of unripened canes.

Practical Methods of Protection

THERE are several commonly practiced methods of protection which are of little use in Northern latitudes, especially in winters like the last when the mercury registered thirty-six degrees below zero, and the average velocity of the wind for the last two weeks in December was forty miles per hour.

One of the popular methods is to completely cover the plants with straw. The canes are drawn together in two or three places, according to the height of the plant, and then some soil thrown around the base. The plant is now ready for its coat of straw. Long rye straw is the best, although it is hard to procure, as most of the grain to-day is threshed by machines which break the straw into short lengths. If long straw is used, it is simply stood upright against the plant to a thickness of three inches, and tied securely together, especially at the top and bottom and more soil is thrown against the base to a height of five or six inches. This will keep the field mice from making a nest in the straw and from feasting on the bark of the plants. This method is quite satisfactory when employed on Moss Roses. Where winds do not have a full sweep it may be used on some of the taller growing Hybrid Perpetuals.

In using short straw, the plant is practically buried with it and a vegetable hamper or box inverted over the whole. Burlap is sometimes used in place of boxes. This method, however, has proved unsatisfactory for three reasons; viz., it makes ideal winter quarters for mice, allows water to collect around the plants, and does not keep out the winds.

Another method of covering is to surround the bed with chicken wire about a foot high and then bury the plants with leaves or litter to a depth of eight or ten inches. A few sticks or branches over the top will keep the covering from blowing off. This is a very good practice where the winters are moderate, but where the mercury drops forty degrees or more in twenty-four hours, especially after a warm spell during the winter, it is of little use.

The One Satisfactory Method

THERE is but one method, which after five years of experimental work has been found to be very satisfactory, especially with the Hybrid

Moss Roses can be protected by straw overcoats

Teas. (Perhaps it may be well to state here that the American Rose Society's Test Garden at Cornell University is planted at the highest point above sea level of any of their test gardens. Its elevation is twelve hundred and fifty feet. This altitude, combined with a rather short growing season, offers several difficulties). The several canes are tied together about the first of November. Then after the ground has frozen several times, softened up, and is *dry on the surface*, the plants are mounded to a height of eight or ten inches.

See that the centre of the plant is filled with soil so that no pockets to hold water will be formed. Care being taken, however, not to dig too deeply, for by so doing, the roots will be left exposed and then the plants will surely die. For this method, the plants should be set at least eighteen inches apart—and twenty-four inches is really better if space is available. After the mounds have become thoroughly frozen the entire bed is covered with old stable manure to a depth of five or six inches. This acts as a covering for the roots in place of the soil which was partially removed in mounding. The manure also absorbs much of the water which might collect in the depressions between the mounds.

The current season's wood of Ramblers must be kept for next year's flowers. Therefore, lay down the cane and cover it as below

After the ground is frozen cover the mounded earth with litter, straw, or manure so as to keep in the cold

Defeating the Field Mice

AFTER the manure is put on, it is a good plan, if troubled with field mice, to place several small handfuls of poisoned grain on each bed. Wheat, soaked twelve hours in a solution made by dissolving one ounce of strychnine or cyanide of sodium in one gallon of water, has proved very effective. In fact, when the beds were uncovered last spring, the mice were found in twos and threes at almost every handful of grain through the entire garden. Only three canes were found to be damaged out of thirty-two hundred plants.

Problem of the Ramblers

THE protection of Ramblers is largely a matter of location in the vicinity of New York City, but farther north, they should be protected in order to make a good showing. Ramblers ought to be pruned immediately after blooming. The best method is to remove all the old flowering wood, leaving only nine or ten strong new canes to a plant. See that other shoots, which spring from the base, are kept removed. The canes that are left will make rapid growth, often attaining a length of twenty to twenty-five feet. They are also very pliable, which in our method of protection is desired.

In November, when the canes are thoroughly ripened, they should be cut loose from their supports, and tied together forming long bundles. These bundles are buried just before winter sets in. Usually cover the Ramblers after the bush Roses are protected. The same rule applies here as to other types of Roses, viz.: *Wait until the ground has been frozen several times and then bury with dry soil next to the canes.* The term "bury" as used here, does not mean that a trench should be dug. On the contrary, avoid any depression in which water may stand. Water around the canes means dead wood next spring.

Lay the Ramblers straight out upon the ground and pin them down with wires shaped like giant hairpins. Now remove the soil from both sides of the bundles and use it for covering. This leaves the canes on a ridge of ground so that the water may drain off on either side. After the soil has frozen, an additional covering of two or three inches of manure is put on, especially around the base. The manure keeps the soil in a frozen condition. This method has proved one hundred per cent. efficient.

This is how the more tender plants should look after the final covering of manure is given

Spring Re-awakening

IN THE spring the removal of the protection is to be accomplished in three different movements.

1. About the middle or latter part of March, shake out and remove all straw from the manure.
2. In a week or ten days, reduce the mounds to one-half their height.
3. After another week, remove the rest of the soil from around the plants and mix with the manure. This gives a good rich top-soil of four inches or so, and eliminates the necessity of an early mulch.

Do not be in too great a hurry to uncover, especially if the weather should happen to be a little warm. The plants start quickly once the protection is removed and a sudden cold spell has disastrous results. *Better be a little late in uncovering*, for then the plants will continue to make a rapid growth throughout the entire season.

Following is a partial list of Hybrid-Tea Roses, which had six inches or more of good healthy wood when uncovered in the spring. It is offered as proof of the effectiveness of this sort of protection:

PINK. Lady Ursula, La Tosca, Mrs. Ashtown, Konigen Carola, Frau Karl Smid, Willowmere, Gainsboro, Mrs. George Gordon. Dora Hansen, Farbenkonigen, Mrs. Theo. Roosevelt, Betty, Duchess of Normandy, Duchess of Sutherland, Mary Countess of Ilchester.
RED. Lieut. Chaure, Robin Hood, Red Letter Day, Red Cross, Cardinal, M. P. Azevedo, Col. LeClerc, Brilliant, Wm. Cooper.
YELLOW. Mrs. A. R. Waddell, Claire Goodacre, Margaret Dickson Hamill, Ulster Gem, G. Amedie Hammond, Marquise de Sinety, Imogene.
ORANGE AND APRICOT. Mme. Hector Leulliot, Old Gold, Prince Charming, Primrose, Queen Mary.

American Pillar Rose

THIS splendid single climber is winning international favor. It is spoken of in the foreign press as one of the best of all climbing Roses and leads the correspondent in a recent number of the (English) *Gardeners' Chronicle* to speak of it as an interesting straight hybrid between two species. It may be well to note what Dr. W. VanFleet, now with the United States Department of Agriculture and who originated this Rose, in his experimental gardens at Little Silver, N. J., says in a recent letter to me, as to its origin: "The American Pillar Rose was raised by me in 1898 from seed of a Wichuraiana-setigera cross pollinated with a bright red Remontant Rose seedling, that had a touch of Polyantha or rather Rosa multiflora in its make-up. It thus contains the blood of four Rose species, but I regard it as essentially a Wichuraiana-setigera hybrid. This variety appears to succeed under very diverse conditions."—*L. B.*

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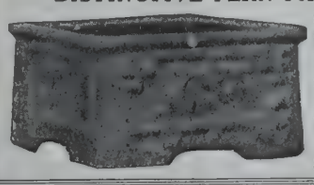

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Dr. Walter Van Fleet

Robert White Medallist, 1918

THE name of Dr. W. Van Fleet is familiar to all American horticulturists, and it is fitting indeed that the Robert White Medal of Honor should be given him in recognition of the splendid service he has rendered. The Massachusetts Horticultural Society as trustee of the Robert White fund has selected Dr. Van Fleet as the recipient for the honor this year.

This gentleman's work in plant hybridization most decidedly places him in the forefront, not only of American hybridizers, but of all hybridizers of the present day.

Trained as a physician and surgeon, Dr. Van Fleet was drawn irresistibly into experimental horticulture, having found his first stimulus when reading about plant hybridization while still a boy.

As soon as opportunity occurred he experimented largely with Gladiolus and was closely associated with the famous European hybridizer of Gladiolus, Max Leichtlin. Out of many thousands of crosses, hundreds of thousands indeed, Dr. Van Fleet selected only five as being worthy of introduction in commerce because he set a rigid standard on himself. That a variety should be merely "different" from others already known was not in his eyes sufficient justification for introduction. It had to possess some distinctive qualification. Many of the modern strains now generally in cultivation are the by-product of Dr. Van Fleet's work.

In 1892 the practice of medicine was abandoned and the business of experimental horticulture taken up, and for several years subsequently Dr. Van Fleet was the horticultural editor of the *Rural New Yorker* until in 1909 he was appointed Physiologist in the Department of Agriculture, Washington, D. C., a position which he still occupies and where he has free rein to indulge in his hobby of plant breeding.

His contributions to our gardens cover a wide range of plants. Probably the two or three most conspicuously successful are the Roses American Pillar, Silver Moon, and W. Van Fleet. Some of his other Rose introductions however, will, undoubtedly, occupy as prominent a place when they become better known.

The man who has given us these things in addition to such popular favorites as Flamingo Canna, several strawberries, and various vegetables which remain as standards of quality at the present day, merits the homage of all garden lovers of America.

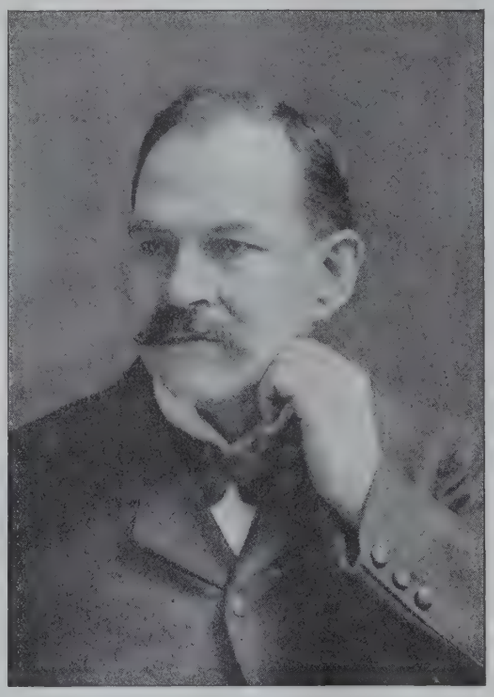
A list of Dr. Van Fleet's most successful introductions is given below:

NAME	INTRODUCER	DATE
Canna Flamingo	Dingee & Conard	1894
Gladiolus Lord Fairfax	Peter Henderson & Co.	1895
" Princess	Vaughan's Seed Store	1906
" Isaac Hutchinson	" " "	1909
" Mastodon	" " "	1909
Sugar Corn Sheffield	Burpee	1838
Tomato Combination	"	1836
" Quarter Century	"	1837
Pepper Upright Salad	J. M. Thorburn & Co.	1907
Lonicera Hendersoni	Peter Henderson & Co.	1896
Rose, Climbing, Alba Rubrifolia	Conard & Jones Co.	1838
" " American Pillar	" " " "	1902
" " Alida Lovett	J. T. Lovett	1916
" " Bessie Lovett	" " "	1917
" " Mary Lovett	" " "	1915
" " Garnet Climber	Peter Henderson & Co.	1907
" " May Queen	Conard & Jones Co.	1898
" " Pearl Queen	" " " "	1898
" " Ruby Queen	" " " "	1899
" " Silver Moon	Peter Henderson & Co.	1910
" " W. Van Fleet	" " "	1910
Rose, H. P., Chas. Wagner	Conard & Jones Co.	1904
" H. T., Magnafrano	" " " "	1905
Rose, Everblooming Clara Barton	" " " "	1898
Rose, Bush, Rugosa Magnifica	" " " "	1899
" " Sir Thos. Lipton	.....	1900
" " New Century	.....	1911
Gooseberry W. Van Fleet	J. T. Lovett	1917
Strawberry Early Jersey Giant	" " "	1914
" Late Jersey Giant	" " "	1914
" John F. Cook	" " "	1916
" Edmund Wilson	" " "	1917

In addition Azalea, Hypericum, and Nicotiana varieties produced at Little Silver by hybridization have been introduced by various firms, meeting with limited or transient success.

Dr. Van Fleet is an extremely modest, retiring man and comparatively few people even among the horticulturists themselves realized that his gardens, while he was living at Little Silver, New Jersey, were the fountain spring of so much that was of merit. He appears in public gatherings very rarely, finding his fullest measure of pleasure in the work that he has in hand and in the realization that there are people benefiting from the results of his labors.

The present work of the doctor consists of breeding disease-resistant Chestnuts on a fairly large scale, using all native European and Asiatic species; the building up of types of hardy garden Roses for American homes, using all the rare and new species; disease-resistant types of orchard fruits, including the apple, pear, peach, plum, and quince; small fruits, such as the strawberry, gooseberry, raspberry, blackberry, mulberry, Amelanchier or juneberry, and barberry; various ornamental shrubs and bulbous plants, including



Walter Van Fleet, M. D

the Calla or Richardia, Lilium, Ixia, Sparaxis, Freesia, and winter-blooming Gladiolus. Present work among vegetables is confined to peppers of the pimento type.

All the new species and varieties introduced to this country by the Arnold Arboretum and the Federal Office of Foreign Seed and Plant Introduction are utilized in recent work and we may confidently assert that a number of meritorious new varieties will in due course be disseminated for trial by the U. S. Department of Agriculture.—*L. B.*

Planting for Southern Gardens

SOW seed of the Early Jersey Wakefield cabbage up to the middle of October in coldframes to transplant to open ground in November. After the ground is frozen the plants can be protected—in the event of very cold weather, by placing coarse, strawy manure on either side of the rows.

Sow in the open ground for salad greens seed of the White Norfolk turnip and Curly Siberian kale, also have the second sowing of Spinach (Savoy type). It would be desirable to have some spinach sowed in a coldframe, as in case of a threatened snow storm the glass sash could be put on for protection and one could gather spinach even in inclement weather.

In all unused plots in the garden sow crimson clover, rye, or barley to be turned under for green manure in the spring. Some plots would be benefited by deep plowing and a thick coating of agricultural lime and allowed to remain in a rough state all winter, as the constant freezing and thawing would mellow the soil. It would be better to test the soil to see if lime is needed. If the soil is sour, litmus paper will turn pink if put in a handful of the soil thoroughly moistened and allowed to remain about an hour. In that event lime is needed.

Celery should be banked up with dirt as it continues to grow and it should be kept constantly nourished with manure water or nitrate of soda from the time the plants are set in the ground in July until ready for the table in November. Celery needs a great deal of feeding and much water. Later on in the winter, the celery bed should be covered with pine tags. (See November number of Garden Magazine, 1915.)

Put out sets of the White Pearl and Queen onion for use in the early spring. They are small onions but delicate in flavor and quite tender.

Strawberry plants can be set out quite late, but it is best for them to get established before freezing weather. Rooted runners can be taken from an old strawberry bed and planted out for a new bed. New beds should be made every two years and the old beds plowed under.

Cut off asparagus bushes now and burn them to prevent spread of disease and to destroy insects. Harrow the beds level. Spread with well-rotted cow manure, or chicken manure mixed with acid phosphates to be plowed under in March when the rows are again hilled up.

Late winter apples should be harvested the latter part of September and early October and stored for winter. All apples that have dropped and are bruised or broken should be made into apple butter or cider. Directions for making same can be procured from the U. S. Agricultural Department at Washington; and the August and September numbers of 1917 Garden Magazine have valuable directions on the methods for the preservation of fruits and vegetables.

Orchard, vineyard and bush fruits need much attention in the fall. All dead and diseased limbs should be removed and cocoons of caterpillars and other insects destroyed; and borers dug out from the base of peach and plum trees. The ground should be plowed, spread with manure, and sowed with Crimson Clover, rye, or vetch to be plowed under in the spring as a green manure, or else sowed in orchard grass for a permanent sod.

Lawns can be kept in excellent condition by a flock of sheep, but the shrubs must be protected by temporary fencing of wire netting. This is being done by many as a war measure because of shortage of labor and also to produce mutton.

After the vines are destroyed by a heavy frost the sweet potatoes are dug. Directions for storing are in November, 1917, Garden Magazine.

Carrots, turnips, parsnips, and salsify can remain in the ground all winter, but one can get at them more readily if they are put in a kiln. Directions for making a kiln are given in November, 1915, Garden Magazine.

Plant all spring-flowering bulbs now, such as Narcissus, Tulips, Hyacinths, and Crocus. Divide and transplant perennials such as Phlox, Sweet William, Hollyhock and Digitalis. Cut off part of the long hair-roots of the Phlox and plant in wet sand in coldframe to propagate more plants. Anchusa italica and Oriental Poppy roots can be cut into inch pieces and planted in coldframes to make more plants.

Prune only late flowering shrubs at this season. Avoid pruning Lilacs and Forsythias and Spireas as the flowering buds are on the new wood.

Virginia. J. M. Patterson.

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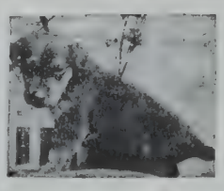

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UNCLE SAM'S GARDENING

A News Feature of National Current Activities

BOARDS of Education, school garden organizers, and all who are interested in putting through the best possible war gardens, should note carefully the personnel of the war garden committee of the Illinois State Council of Defense. It has proved itself so very effective. Judging from results, it would be well if in all our cities the garden committee were made up on the same lines.

These are the members of the Chicago Committee: Robert B. Beach, Chicago Association of Commerce; Joseph Budlong, Truck Gardener; John C. Cannon, Lincoln Park Commissioners; Walter E. Dorland, Boy Scouts of America; J. F. Foster, South Park Commissioners; August Geweke, Truck Gardener; J. A. Hillier, Y. M. C. A.; P. G. Holden, Director Agricultural Extension Dept. International Harvester Co. N. J.; Brother Justus, Arch-Diocese, Chicago; A. R. Mariott, Chicago Title & Trust Co.; B. J. Mullaney, Publicity; Mrs. Augustus Peabody, Women's Food Production Committee; J. H. Prost, Director of Gardens; Mrs. Louise O. Rowe, Dept. of Public Welfare, City of Chicago; A. C. Schrader, West Side Park Commissioners; John D. Shoop, Chicago Public Schools; Thomas Skompa, Northwest Park Commissioners, Leonard Vaughan, Seedsman; Harry A. Wheeler, U. S. Food Administrator for Illinois.

Observe the business men and the truck gardeners and seedsman, the clergy and the Boy Scouts and the Y. M. C. A., the publicity man, the International Harvester, and the Public Welfare, the Park Commissioners—and only one from the schools! Here was an admirable working organization that could tackle every phase of garden production.

* * *

VERY EARLY in the spring, a definite programme was formulated and this programme was adhered to closely. Here it is; together with the way it was worked out:

I. *To distribute gardening information by daily news bulletins;* (Official bulletins published in four of the daily papers, 225 newspaper stories on gardening—total press clippings, 350). *By primers* (100,000 Garden Primers distributed free, 50,000 primers sold at $5.00 per M.) *By practical instructions* (4,000 "Grow a Vegetable Garden" by the International Harvester Co. distributed, 3,000 Natl. War Garden Commission primers, 3,000 Illinois University Garden Bulletins; 5,000 Trade Catalogues on seeds, fertilizers, spraying materials, etc.)

By lectures (A short course of gardening was given by the garden committee, about eighty of the total attendance volunteered their services to do talking before clubs and factory groups—Number of lectures 682).

By posters and signs (10.000 War Garden posters donated and distributed free, 17,000 Garden Signs distributed free).

By demonstration gardens (These were established to the number of seventeen in the large parks, by the Park Commissioners. They were vegetable gardens which afforded practical demonstrations of how and what to do in the garden and when to do it. These demonstrations were conducted by the Head Gardeners of the parks, and by lecturers sent out by the Garden Committee).

II. *To record donations of cultivatable property and assign same to applicants requesting gardens.* (2,200 acres of vacant and idle land was donated for War Garden purposes, most of which was turned over to the local gardening associations. Nine hundred people requested land and were assigned lots through this Garden Committee, 2,000 people were referred to the garden organizations covering the territory in which they lived).

III. *To carry on gardening campaigns through organizations, and to further organize clubs in territories where none existed.*

This was one of the most valuable points of the Chicago Committee's programme. The Committee corresponded with and furnished garden information to about 300 improvement associations, 60 of these became definitely affiliated with the War Garden Committee, carried on a definite campaign and covered a prescribed area of the city. The largest and oldest of the affiliating organizations are shown in the table in the next column.

There was a total of 8,422 registered Association gardeners and 744 acres cultivated. The other associations have smaller community gardens on vacant lots. By the coöperation of these associations the seeker after garden information could have help from the nearest source of wisdom.

IV. *To furnish plowing, harrowing, fertilizer, tools, seeds, seedling plants, onion sets, etc., to organizations and to citizens at cost,* free of charge where possible.

The different Park Commissioners and the Chicago Florists' Club grew and distributed plants through the War Garden Committee to the number of 1,500,000.

V. *To have a map of Chicago, showing on the same territories covered by these garden organizations* and the schools having school gardens.

This was done, each organization assuming charge of its section, and afforded a fine example of how to avoid overlapping and duplicating of work.

VI. *To encourage and supervise children's school gardens and home gardens, public schools, parochial schools, and private institutions.*

This work was under the direction of the "Women's Directing Committee for Children's War Gardens." The Committee as follows: Mrs. Augustus Peabody, Mrs. Joseph T. Bowen, Mrs. Cyrus H. McCormick, Mrs. Wm. S. Hefferan, Mrs. Tiffany Blake, Mrs. Robert P. Bates, Mrs. Robt. H. McCormick, Mrs. Edward Gudeman, Mrs. Samuel T. Chase, Mrs. George A. Ranney, Mrs. Walter S. Brewster.

Numbers of amateur gardeners were enlisted in the work of supervising the children's gardens, the women pledging to give certain days or hours of the week and were assigned garden responsibilities accordingly. If any lacked wisdom she could ask of the Director, J. H. Prost. The schools reporting school and home gardens were indicated on the map, and the women ward garden leaders selected volunteers to help in directing and in keeping the merit record which to child gardeners is all-important. There were 90,000 child-gardeners, and placing on each crop the extremely modest valuation (for full returns are not yet in) the crop value will total $55,620.

VII. *To provide medals to the best children gardeners.*

Forty thousand United States School Garden Army insignia bars have been distributed. A bronze medal will be furnished by the Chicago *Tribune* to every juvenile gardener passing a mark of 90, on the record book. The best boy and girl gardeners in each school district, parochial school, or juvenile institution, will be given a silver medal, also furnished by the Chicago *Tribune*.

VIII. *To direct a citywide prize garden contest.* The Women's War Garden Committee will award the War Garden prizes which have been offered by the various corporations to the best gardeners entering these contests.

The number of families having home yard gardens approximates 140,000. In the immediate suburbs of Chicago, crops are grown on at least 90 per cent. of the vacant land.

An approximate estimate of crops and crop-values given out by the Committee, is as follows (and a very conservative estimate is this, certain to be greatly surpassed when the actual figures are all in).

CHIEF COOPERATING ORGANIZATIONS

ORGANIZATIONS	SERVING	CULTIVATING, (ACRES)
City Gardens Association	700	60
Stockyards Community Clearing House	1,300	50
Stock Yards C. C. H. (Boy Scouts)	150	10
So. Chicago Y. M. C. A.	1,500	120
Rogers Park Defense League	1,300	110
Norwood Park Community Gns. Assn.	500	100
West Pullman Y. M. C. A. Gardening Club	300	110
Boy Scouts of Chicago	1,052	19
City Welfare Department	300	20
Avalon Park Civic Association	200	15
Austin Gardening Association	100	10
Salvation Army Gardening Association	60	10
Pullman Co. Gardening Club	500	80
Chicago Lawn Gardening Association	160	20
Northwest Park District	300	40

	ACRES	NUMBER OF GARDENERS	VALUE OF CROP
Home Yard Gardens	3,850	140,000	$2,800,000
Vacant Lot Community Gardens	774	8,422	673,760
Children's Gardens	206	90,000	55,620
Approximate Grand Totals	4,830	238,422	$3,529,380

Nearly 5,000 acres under cultivation, and three and a half million dollars' worth of crops is a record the Chicago Committee may well be proud of. And admirable as this record is, it is not exceptional, but typical of the best-managed community gardening. But the coöperation of parks, and florists' associations, the coöperation of existing associations, the districting of the city so that no labor might be wasted is well worthy of attention.

* * *

MANY of the women of the Directing Committee for Children's War Gardens are also on the committee of the excellently managed Illinois Training Farm of the Women's Land Army of America. Through the generosity of Mr. W. V. B. Ames 200 acres of his Libertyville farm, beside some stock and the buildings, was tendered to the Women's Land Army. Here a six months training in farming, dairying, and poultry raising, and vegetable gardening is given freely. The applicant must be in good health, must promise to use the training for the patriotic aims of the Land Army, and must enroll until the end of October. There are no expenses—no charge for tuition, board, or lodging.

There are plenty of untrained women eager to work on farms and in gardens, but our crying need is for trained help. It is this need that "Liberty Farm" is planned to meet. Next year its students can act as directors of children's gardens for which posts this year the supply was unequal to the demand. Mrs. Tiffany Blake is chairman of the committee, others on it are Mrs. W. V. B. Ames, Mrs. G. B. B. Steward and Mrs. C. W. Deusner—both very able members of the Women's National Farm & Garden Association; Mrs. Peabody, Mrs. Brewster, Mrs. Dunlap, Mrs. Medill McCormick, Dean Mary Potter, Mrs. Cahn, Mrs. Charles Hubbard, Mrs. Rosenstone, Mrs. Chase, Mrs. Stanley Gordon, Mrs. Vibe K. Spicer, Miss Bell. Miss Blanche Corwin is Farm Manager.

* * *

THIS COMMITTEE has also mothered a successful Part-Time Work scheme, whereby women who can give so many hours a week, may form a Unit and cultivate a community garden under competent supervision, so that next year all will be fairly expert gardeners. More than 90 part-time units have been formed throughout Illinois, and the work has the approval of J. H. Prost, director of the Chicago Committee, and like all garden work in or near Chicago, it has had the backing and aid of the central committee.

IN THE enterprise of getting women workers on to the land, far more is due to the pioneer schools of horticulture for women than many realize. If it had not been for the admirable work done at the School of Horticulture for Women at Ambler, Pa., and the School at Groton, Mass., we should indeed have been hard put to it to find directors and supervisors for various garden enterprises for women. These schools, and especially the one at Ambler, blazed the way, and made the success of many an undertaking possible.

* * *

LIKE THE parks, which have been more useful to the citizens than ever they dreamed of before, the Public Schools are also making themselves useful as community centres. W. L. Fleisher, New York Member of the American Society of Heating and Ventilating Engineers, asks "Why not use the public-schools as food-drying plants—in New York City there is actual apparatus to dry enough food to feed 2,000,000 men three meals every day?

Our public schools could easily be utilized for the country's food needs. The walls of these buildings eliminate the necessity of a great part of the kilns. The heating and ventilating systems could be turned into dehydrating plants in very quick order. Of the 700 schools in Greater New York half have efficient ventilating equipments—10,500,000 cubic feet of air per minute in these 350 schools can be heated to the right temperature. The products would be 500 pounds of dried material a minute, or 300,000 pounds per working day of ten hours, the total amount of food per day for 2,000,000 men. Basement corridors could be turned into tunnel dryers by means of wooden partitions. The tunnel dryer, according to commercial practice, is the very best and most economical made. I would have the carriers or trays built by the boys of our manual training schools, supplemented by outside labor, and would have both our boys and girls instructed in the preparation of the food and the drying. The Government would ship to the schools the food to be dried and the products could be made ready for shipment there. The school dryers could also be used for drying the surplus domestic product that the communities brought to the school.

And while the school buildings were thus employed the children could have their lessons in the parks. It is probable they would highly approve of the scheme though whether the Board of Education would do so, is another matter. The suggestion makes one wonder, however, how much "dehydrating" the children get in the course of the school day?

* * *

UNCLE SAM furnishes abundant information as to canning and drying which may be had from the National War Garden Commission, and the States Relations Service, (Address Office of Extension Work, North and West, Washington, D. C.) publishes excellent follow-up instruction leaflets for use in the Home Canning Club work. The complete series may be had by asking for the following under their cabalistic signs NR-21, NR-22, NR-23, NR-24, NR-25, NR-26, NR-29, NR-30.

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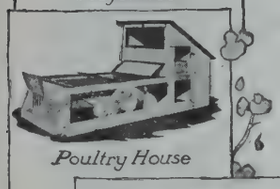
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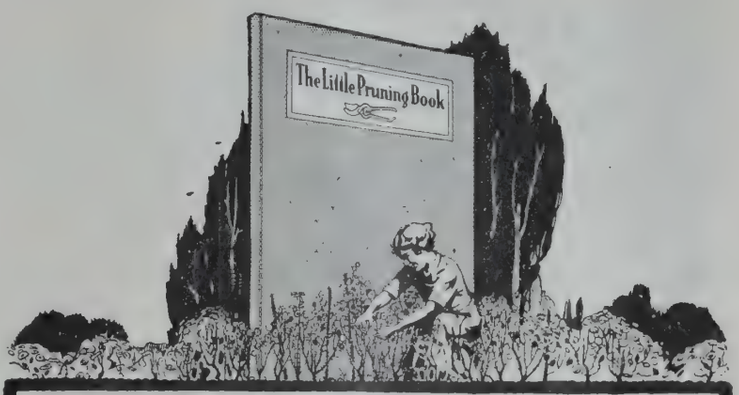

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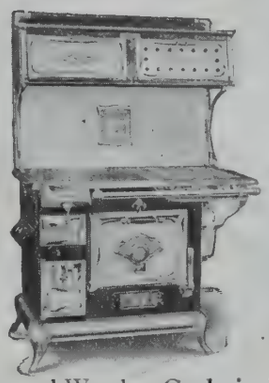

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Potatoes Grown Under a Straw Mulch

E. F. MURPHY,
Director of Home Gardens, Richmond, Ind.

THE high-priced potato has helped much toward making the cultivation of crop welcome in the small garden. In nearly every war garden last summer one saw a few rows of potatoes regardless of the size of garden, and the home gardener has found that they are deserving of the space. Heretofore it has been thought that potatoes were out of place in the small garden, but a sudden change has developed and every odd way of growing potatoes has been put into use.

One of the easiest and most practical ways of growing potatoes in the little garden is to grow them under straw. Then they do not require cultivation and are not dependent on a rain at any particular time. The thick layer of straw keeps down the weeds and allows a more even distribution of moisture throughout the growing season; and two of the most common difficulties of potato growing are eliminated. There is always plenty of moisture in the soil in early spring, and one of the big problems has been to conserve it and have an even distribution for the crop throughout the growing period.

The moisture that is beneficial to plant growth is *capillary* moisture which rises toward the earth's surface between the soil particles. This moisture readily evaporates as it comes to the surface unless the ground is mulched and the soil then soon becomes dry and hard, which is very undesirable for potatoes. A mulch of straw is an effective means of conserving moisture during the entire summer. One may lift off the straw at any time during dry weather and find the ground below it sufficiently moist and cool. This is an ideal condition for potato-growing. A dust mulch is not quite so effective inasmuch as capillarity is soon reëstablished and the moisture is then able to evaporate.

IN ORDER to grow potatoes under straw, the ground is spaded as usual, and a fine garden seed-bed is prepared. Small furrows are then made about three inches deep and twenty to twenty-four inches apart, and the seed pieces dropped at proper distances in the furrows. Some growers cover the pieces with about an inch of soil and then mulch with straw; but equally good results have been obtained by merely covering the pieces with about six inches of straw.

Potatoes grown under straw require no attention—save for the potato beetle—until they are ready to be harvested. And when they are harvested, one has only to lift off the straw and fill the basket! The potatoes are clean, smooth, of usual size, and of good quality.

Now, as the home gardener takes pride in saving for seed next year something he has actually grown himself, especially if he has produced something of unusual quality or size, he has here a wonderful opportunity to even scientifically select seed potatoes, when he has grown them under straw. The common method of selecting seed potatoes is to go to the potato pile after digging and storing and pick out the nice ones for seed. In this way, one may be selecting a seed potato which came from a hill that produced only one or two desirable tubers. When they are grown under straw, one may remove the straw from all the rows, walk along, and, by comparing the different hills, select good seed from desirable hills. If this be done each year, one will gradually have a strain of potatoes that will more nearly approach the ideal. This is scientific selection as practised by the novelty breeder.

POTATOES grown under straw make better seed potatoes than those cultivated in the usual manner according to my

"The proof of the pudding"—just as they grew under their straw covering

observations. Investigations conducted by the Nebraska Agricultural Experiment Station as shown by the following table indicate that seed produced under mulch produces more tubers than seed that is cultivated:

RESULTS OF MULCHING MORE THAN ONE YEAR

NO. OF YEARS MULCHED AND CULTIVATED		MULCHED SEED PRODUCED	CULTIVATED SEED PRODUCED
Years	Tests	Lbs.	*Lbs.
2	4	100	66
3	1	100	74
4	1	100	68
5	1	100	66
6	2	100	61
7	2	100	49
8	1	100	54

*Lbs. produced as compared with 100 lbs. produced from mulched seed.

There are many other ways of growing potatoes. Look into the city backyard gardens and you will find them growing in boxes, pyramids, and even barrels. The practicability of these methods remains yet to be seen, but the straw method has come to stay.

Dahlias Not Flowering?—Will not those who are suffering from Dahlias not blossoming please state what they think is the reason? I have been taught to suppose that the buds and shoots suffer from the stinging of the tarnished plant bug. My Dahlias grew very fast this July, on account of good soil and the heavy rains. I have them set quite close together, each plant cut down to one shoot and am prepared to cover the whole plot with mosquito netting as soon as the bug makes its appearance.—*John W. Chamberlin.*

Wild Flower Conservation

AS SEVERAL people have written me concerning my article on "Wild Flower Preservation" in The Garden Magazine for February, 1917, and believing that others might, too, be interested in the different phases of the subject, I will add some suggestions to what has already been published. Someone wishes to know how to get the public interested. First, be interested thoroughly yourself, then, like leaven, the thing will have a good start. And I have the belief that city people can be more easily interested in the conservation of wild flowers than country people. I remember that when I lived on a farm such plants as Oxeye Daisies, New England Asters, etc., I despised as weeds, and for good reason; but now, a city suburbanite, I give a conspicuous place to our natives in my garden. And by becoming an enthusiast in this line I have interested others in wild flower culture. Another way of getting the public interested is through the school children.

One party wishes to know how to go about the saving of our wild flowers. In your trips about the country or the fields of the suburb it is well to anticipate the securing of some wild floral treasure by carrying a few coin envelopes for seeds or some waxed paper for wrapping plants. Let the school children interest themselves in the saving and sowing of worthy wild flower seeds, paying attention to soil requirements. But do not hesitate to sow bog plant seeds in ordinary garden soil, or vice versa, for plants often have a way of accommodating themselves to environment foreign to their original habitat. I have made the Lady Slipper Orchid do splendidly in a shady spot in the garden. And we are all acquainted with the glory of the Cardinal Flower in everyone's garden that naturally loves a moist place for her feet! Then if aquatics and semi-aquatics will not survive in our moist spots we can saw a barrel in two, sink it even, so as not to be visible and insure a plentiful supply of moisture.

Then, again, there are many wildings that can be propagated from cuttings. It is surprising the readiness with which some will root. I brought home some slips of our wild prairie Rose and thrust them in moist earth and turned a mason jar over them and in a few days they were all rooted. This Rose develops a stem some twenty feet in length.

I remember that when I came to Detroit sixteen years ago, wild flowers were held in such light esteem that I innocently picked a bouquet of the choicest May Flowers in the woods of Belle Isle and brazenly passed several policemen on my way out of the Park. Now rigid restrictions are placed on such vandalism.

Then purple Gerardias, Gentians and the like were treated as weeds. Now they are cherished by many individuals and societies. Then wild life in the parks could be classed as simply plants and shrubs and trees. Now they are individualized. A neat label helps to educate people and introduces them to the non-botanical population. Some people may have the idea that our natives cannot be transplanted when in bloom. But I have yet to meet with disaster from moving flowering plants. The fine feature about it is that you can see what you are getting. This is especially desirable with such kinds as Canada Lily, Veronica and Phlox that vary so in their coloring.

U. R. Perrine.

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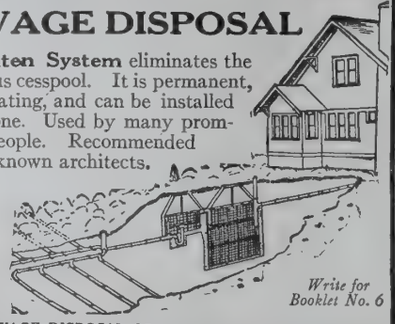

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Growing Mushrooms for Profit

THERE are several distinct varieties of the cultivated mushroom which, based upon color, may be distinguished as a white, a brown, and an intermediate or cream-gray variety. To these have been applied the trade names Alaska, Bohemia, and Columbia, respectively. Mushroom growing is not the easy, sure and simple process that we are led to believe. It is more generally regarded as a forcing crop, and it fits in well as a winter crop for the market gardener. The considerable quantity of manure that must be secured to get the best results can be used to good advantage on the vegetable crops after coming out of the mushroom beds. All that is needed to produce mushrooms is a suitable building, some stable manure and the mycelium, or spawn. The building should be built so that the air inside can be kept at a uniform temperature of fifty to sixty degrees. There should be provision for ventilation and the darker the place the better. I would not advise the use of the cellar beneath the house for this purpose, because there is always some odor and it usually winters quantities of flies. However, mushrooms can be grown most conveniently in the greenhouse, under benches where there are no pipes. If asparagus is not forced—in itself a paying crop—the space under the benches, which may thus be utilized, is but of little use for other purposes, and the income obtained from it is nearly all gain.

Having the suitable building, the next thing needed is good spawn; the use of poor spawn is one of the chief causes of failure. The only test that can be made of spawn is to examine it; as it takes an expert to tell whether the spawn is fresh or stale, be sure to deal with a reliable seedsman and keep the spawn in a cool, dry place. The next important requisite is horse stable manure. This should be, if possible, from well fed animals that are bedded with straw; it can rarely be secured with enough moisture, so water should be added. Take out all the strawy and coarse parts using nothing but the fine portion of it. Mix this with fresh loam, one part loam to two parts manure, and add water. The manure is ready to be made up into beds when it gets the color of strong coffee throughout and is so damp that the moisture can be seen when a handful is squeezed. There should not be enough to drip. The manure will usually be ready to put into the beds about a week or ten days after it is secured.

Construct the bed 8 to 10 inches deep, about 4 feet wide and as long as required, allowing the prepared material to stand as it is. A thermometer should be pushed down into the manure and when the heat has dropped to 80 degrees, the bed should be spawned. Make holes two or three inches deep, into which put the spawn in pieces about as large as a hen's egg. Cover the spawn and let it remain undisturbed for eight to ten days; then cover the whole bed two inches deep with good garden soil or loam, making it firm with the back of a shovel or spade. Apply water only when the soil is very dry. A covering of straw should be put on the beds to insure more uniform conditions. After the loam is applied there is nothing further to be done except to see that as nearly as possible a uniform temperature of sixty degrees is maintained. Under suitable conditions and with the exercise of constant vigilance as to general cleanliness, the mushroom bed will seldom fail as a result of diseases or insect depredations.

Mushrooms will appear in six or eight weeks, and will continue more than two months. By careful applications of water at the temperature of about 70 degrees, the season may be prolonged. Under proper conditions mushrooms can be grown any season of the year. The month of February usually brings best market prices for the mushrooms. The yield will vary from a few ounces to a pound per square foot; the prices will range from twenty cents to one dollar a pound. Mushrooms come up in clusters and should be pulled from the soil. Cut off the stem at the base and any adhering soil is brushed from the cap. It is not necessary to cut off the stem short, but the market demands that there shall be a few long shanks. Quart and 2-quart baskets, crated, make the best packages.

Maryland. SAMUEL H. GAREKOL.

An Experiment and Two Observations: Dahlias, Beans, Potatoes

WHEN the call came last spring for war gardens I did not wish to throw away my aristocratic Dahlias to make room for common vegetables. I hesitated but was not lost. I remembered how, when I was a boy on a New Hampshire farm, we grew beans between the hills of corn with no harm to the corn. I thought, if corn why not Dahlias, and planted pea beans between my Dahlias with the result that I now have enough dry beans to furnish me with the regulation New England Sunday morning breakfast of baked beans until next year's garden begins to yield. We had to be a little more careful when cultivating, but aside from that the beans were a clear profit.

The high cost of potatoes caused two of my neighbors, one whose lot adjoins mine, the other lives across the street, to try experiments in planting. One, getting some especially good potatoes from the market, cut out eyes, from day to day as they were cooked, and planted the eyes in common garden soil in small flower pots and boxes and kept them in the kitchen. At planting time the eyes, all of which had sprouted, some two or three inches, were transplanted to the garden. When dug, the yield both in quantity and quality was fully equal to that in near-by gardens where seed potatoes had been cut up and planted in the usual way. The other neighbor cut off the seed end of potatoes before cooking and placed the cuttings on a shelf in the cellar where they remained several weeks and became quite dry before they were planted, but they grew and yielded as well as some planted in the usual way in another part of the garden In addition to this, he found some potatoes that had sprouted, with the feeding roots starting at the base of the sprouts. He broke off the sprouts close to the potato and planted them. They grew and when dug yielded as many to the hill as any he had planted.

From these results it seems that one who has a place where he can pot the eyes and keep them until planting time, can not only eat his potato and plant it too, but may get new potatoes sooner than he could if he planted in the usual way.

Athol, Mass. E. V. WILSON.

Household Hints

THE old time method of drying fruit and vegetables in the sun certainly made a better and sweeter product, but it required much attention and to be covered with cheese cloth or mosquito netting as a protection against insects, and to be taken in at night in case of rain.

A very simple home-made device would save much trouble—use one hotbed sash which measures three by six feet, make a frame just as is made for a cold frame—two feet high at back and one foot high in front and the sides made sloping. Place this box on a sunny roof of a porch with the trays of fruit under the glass sash. The trays should be lifted from the roof resting on two bricks so as to be as near the glass as possible, and are better still if made of wire mesh. Such things can be gotten at the ten cent stores. The glass draws the sun and dries the fruit more rapidly and also protects it from the rain, and so, the process of drying can be completed without moving the trays back and forth. Sulphurating fruit is another method which is very good and the fruit does not turn dark as it does by sun drying.

Sulphurated Fruit. Apples may be cut in large pieces with or without peeling. Put in basket and hang in the top of a close barrel covering with something heavy, an old quilt folded makes a good cover. Have in the bottom of the barrel a pan of coals on which to pour the sulphur. Cover and leave four or five hours. One cup of sulphur to a half bushel of fruit will be sufficient. Do not put all the sulphur in at once. It is best to use half a cup and leave for an hour or two, then replenish fire and use other half. It is a good idea to sulphurate in the afternoon and leave basket hanging in the barrel overnight. Take from basket, pack fruit in large mouthed stone jars and tie a muslin cloth over top. Leave this without any other cover in order that the sulphur may evaporate. Peaches halved and sulphurated are excellent, and delicious served with cream and sugar.

Where there are large orchards and vineyards much fruit goes to waste, but apple and peach and pear butter is very palatable, and the fruit juices which can be kept sweet to use in winter are most desirable.

Besides the receipt for apple butter, and the one for keeping cider sweet, I add two modern ones which are excellent.

APPLE SYRUP

Fill a kettle two-thirds full of sweet cider. Seven gallons of cider will make one gallon of syrup.

To seven gallons of cider put five ounces of calcium carbonate, or carbonate of lime, sold in the drug stores as powdered marble dust or precipitated chalk. Boil for a few minutes. Pour into large jars and allow it to settle until perfectly clear. Pour syrup back into kettle leaving sediment behind. Add a level teaspoonful of chalk and boil liquid down to one-seventh of the original volume, or until of the consistency of maple syrup. Pour off and allow it to cool slowly and allow sediment to settle. To cool slowly, the vessel containing the liquid can be put inside of another vessel containing warm water and set aside, both cooling. Pour the clear portion in kettle and heat nearly to boiling point and pour hot into sterilized fruit jars or bottles and seal immediately, or pour cold into bottles or jars and set in boiler of water and sterilize as is done for fruits.

Unfermented Grape Juice. Use thoroughly ripe grapes. Wash the clusters and remove all imperfect grapes. Do not stem the good ones. Fill a kettle with the grapes and put in enough water to be seen down through the grapes. Cover and cook slowly until the juice is extracted. Drain through a colander, then pour the juice through a jelly bag, but do not squeeze it out. Good ripe Concord grapes require no sugar, but if grapes are sour, sweeten the juice to taste. Put juice in sterilized bottles, put in corks lightly, place bottles on a rack in a boiler with water half way up bottles and boil for five minutes and push corks tight into bottles and cover with sealing wax.

Apple Butter. Have your kettle thoroughly clean and fill it early in the morning with cider made of sound apples and fresh from the press; let it boil half away, which may be done by three o'clock in the afternoon; have pared and cut enough good apples to fill the kettle; put them in a clean tub and pour the boiling cider over, then scour the kettle and put in the apples and cider, let them boil briskly till the apples sink to the bottom; slacken the fire and let them stew, like preserves, till ten o'clock at night. Some dried quinces stewed in cider and put in are an improvement. Season with orange peel, cinnamon or cloves just before it is done. If you like it sweeter, you can put in some sugar an hour before it is done. If it cannot be finished the first day, put it in a tub and finish it the next day; and when it is done, put it in stone jars. Anything acid should not be put in earthern vessels as the glazing is poisonous. This way of making apple butter requires little stirring, but you must keep a constant watch so it doesn't burn. Peaches and pears can be done the same way.

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An Apology

Due to a regrettable oversight, the September advertisement of the Palisades Nurseries, Inc., of Sparkill, New York, was signed "Sparkhill" instead. It appeared on Page 63 of the September issue, and announced Palisades Popular Perennials for Fall Planting.

Any readers, who, because of addressing their inquiries to Sparkhill were inconvenienced by an unpleasant delay, are herewith offered the apologies of

The Advertising Department

Country Life
in the War

OVER THERE has become as close to most of us as Over Here. In a very true sense France, where so many of our boys are, is our other home.

And so it will continue to be throughout the war. COUNTRY LIFE, therefore, as it follows and tries to serve its great family, so many of whom are on the fighting line, will be in and of and with the war more completely than ever before. Until the war is won, the legend on our banner will be "Country Life in the War." This is merely an outward and visible recognition of the fact that our life and times are changed beyond all that the most imaginative of us have dreamed.

"COUNTRY LIFE in the War" will undertake to give the moving panorama of the great struggle, its color, its feeling, its human drama—not the campaigns, nor the strategy, nor the casualty lists, as other publications are doing all that admirably and adequately. But there are big and vital things that are in the war and parts of its background that we shall claim for our own.

For example, the personal valor and intrepid spirit of our men are winning the highest decorations and honors on the battlefields. We shall show the pictures of these heroes together with their decorations—many of them in full color—month after month in a special section to be called "Won on the Field of Honor."

America has gone out to sea. COUNTRY LIFE will give the absorbing story of the men who are building the battleships and merchant ships by the hundreds—and the pictures in full color and monochrome will be of the kind that one cuts out and preserves for our children's children.

America has gone into the sky. COUNTRY LIFE will undertake to impart some of the thrill and feeling of the great aircraft story—the story of the man's-size job of making them and of the boys who fly them—the cavalry of the four winds. And here again the pictures will be such interpretative records that they will be kept as mementoes of a great age.

America has gone into the forests. To-day the nation's trees are a priceless possession. They cover thousands of square miles, almost a continent in size. From them come timber for air ships and sea ships. In them graze twelve million head of cattle, an increase of ten-fold in ten years. Again the COUNTRY LIFE pictures will be worthy of a great patriotic and descriptive issue.

America has put her hand to the plow and brought forth a mighty harvest to feed the world. In a word we have gone far beyond the country life of yesterday with our little joys and inconsequential putterings, and have come into a day of epic achievements. We can no longer think our former thoughts, of gardens, of polo, of orchid collecting, of bird songs, thoughts of the quiet peace of countryside. Instead we have stepped out into the world, to help win the battle for freedom and democracy. It is this great picture of human activity and accomplishment that the magazine would present.

And so it will go—the enormous tasks of the Navy, the spirit of the marines, the tank corps, the life of the fighting men—all phases and branches of the war, outside of strategy and news—they will all find a place on the large and graphic pages of "COUNTRY LIFE in the War."

We shall go forward with this important and interesting undertaking at once. In October we shall tell the wonderful story of how England has enlisted her country homes for the war, and try to convey to you something of the inspiration of her glorious countryside. In November the issue will be largely devoted to "France, Where Our Boys Are"—how they were moved by the hundreds of thousands across the sea, how they spend their working hours over there, how and when they play, how they are brought back to health and vigor when wounded. Our hearts are there with them; perhaps this magazine can transport our mind's eye there as well.

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NOVEMBER, 1918

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THE GARDEN MAGAZINE

NOVEMBER, 1918

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LEONARD BARRON, Editor

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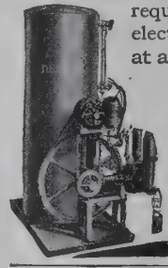

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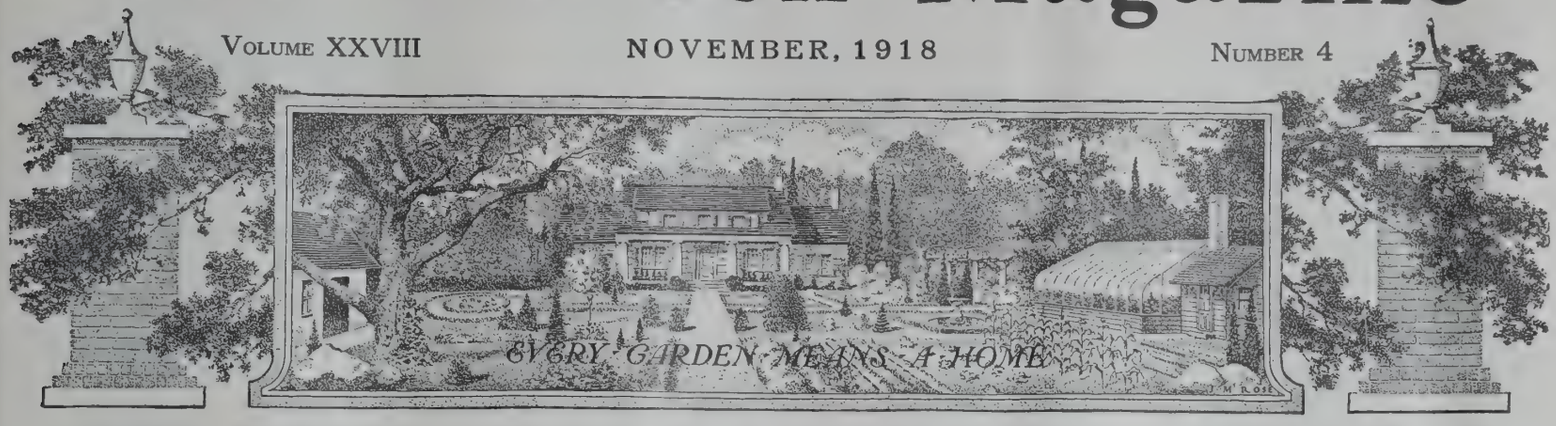
A lovely climber, adaptable to all locations; unsurpassed for covering trellises, walls or stumps. Rich green all the year, with crimson berries in winter. Can be planted at any time.

1st size, 50c each; $5 per dozen
2nd size, 75c each; $8 per dozen
3rd size, $1.50 each; $15 per dozen

Adolf Müller DE KALB NURSERIES
Norristown, Penna.

The Garden Magazine

VOLUME XXVIII NOVEMBER, 1918 NUMBER 4



AMONG OUR GARDEN NEIGHBORS

Flowers and Shell Shock!

PATRIOTIC men and women realize the need for increased activity in bringing comfort to our returned wounded heroes. But few know how to go about lending a helping hand to further the good work. We shall dedicate the greater part of the editorial pages of December GARDEN MAGAZINE to spreading the facts about the mission of flowers in war times, and to the "Say-it-with-Flowers" movement.

Do you know that flowers really help to make sick soldiers well?

Do you know that fragrant flowers may be as a barometer in indicating the nearness of a soldier's recovery from shell shock?

Do you know that flowers are needed in our base hospitals as much as any medicine?

Do you know what the florists of America are doing in supplying flowers "behind the scenes," in their own modest way?

Do you know about the wonderful work of distributing these flowers by The National League for Woman's Service?

Many hitherto unrecognized potentialities repose within the delicately scented petals of flowers. Why handicap these lovely messengers of a fairer world with sentimental reasons and apologies for *why* they should be grown?

Go into the hospitals and study their *practical* value. Watch the effect of a bright bunch of flowers on the faces of the patients. Let the people arise as a solid unit in the demand for flowers, more flowers, and *still* more flowers, until they are accorded their proper place in the list of essentials. The December GARDEN MAGAZINE will do its part to bring about this thing.

Organization and Publicity

THE constructive value of organization and the reserve force that is thus afforded to meet any emergency that may develop has been forcibly illustrated in the work of various garden clubs in their relation to war activities. From small, even obscure, beginnings, and more or less as social factors in different communities, they have gradually broadened out in their view point and in their relationship to other interests. Starting as obscure gatherings of a few garden cranks, they have gradually grown into a power of inspiration to thousands who hitherto regarded gardening as something more or less apart from themselves, an existant mystery into which it was not their problem to delve too deeply.

All this has been changed. When the war stirred up local interests it found the clubs already in being to be easily adaptable to national service. The chief point was that the organization existed, and, following the lines of indicated necessity in various localities, they got busy and did the obvious thing. They have encouraged war gardens, community garden work, established canning kitchens, operated dehydration plants and in various other ways they made their energies productive. When the Woman's Land Army of America was started the members of the various garden clubs did much to help along that movement.

Of course each club finds its own field of activity; probably no two organizations can develop to their fullest along identical lines. Perhaps the one criticism that might be made of garden clubs as individuals is a tendency to internal secrecy and a shrinking from publicity. Of course there are a few notable exceptions. One of the most striking in the power of publicity and the growing importance of the organization in its community is possibly that of the St. Thomas Horticultural Society in Canada. Ten years ago it was a small introspective organization but it had a far seeing leader in Dr. F. E. Bennett; and with a capital of unlimited enthusiasm and only 125 members, it started out to do things. Its subsequent career is a revelation of the power of publicity in arousing the entire city to gardening interest. It used the columns of the local press in announcing its meetings, inviting the public to listen to free lectures by prominent authorities; and in a few years it has built up a capital of several thousands, increasing its membership to over 1,000 enrolling *all* the leading citizens, both men and women, as active members.

Realizing that gardeners should read something about gardening, and keep in touch with current affairs if they wished to get the most out of their own efforts, Dr. Bennett decided to carry a subcription to a gardening periodical for every member. THE GARDEN MAGAZINE was selected and space was taken in the local papers to advertise THE GARDEN MAGAZINE in conjunction with the membership of the society.

In a recent letter, Dr. Bennett says that the magazine is read as much for its advertisements as for the reading matter. It believes in advertising itself. That is why it carries an advertisement of its own every day of the year in the daily papers of its own home town. The organization believes in coöperative work and purchases advertised goods on a coöperative plan.

This year, among other garden material and supplies, the buying department of the St. Thomas Horticultural Society purchased one hundred thousand Dutch bulbs, thirty-five thousand Gladiolus, twelve thousand Roses and fifteen hundred Peonies besides thousands of other plants, shrubs, etc., in variety.

Is St. Thomas, Ontario, so different from other places where gardeners foregather, that its methods are not in some degree adaptable everywhere? Hardly! It is merely that the opportunity has not been seized. We feel some gratification in being part and parcel (although it was entirely unknown to us for some time), of the movement that means so much to the horticulture and gardening of that one community.

It would not be fair in this connection to omit mention of the Garden Club of Ridgewood, New Jersey, which has more than two hundred members, all men, in which respect it is perhaps unique. Ridgewood, New Jersey, is not a large town. Its garden club is a live organization, representing the entire purchasing power of the gardens of the district. It also buys collectively.

Prodigious Totals

IT IS estimated by the National War Garden Commission that this year's value of the food stuffs produced in emergency war gardens has amounted to $525,000,000, the output in round numbers of 5,250,000 individual plots. This is an increase in the number of plots cultivated of about 51 per cent. as compared with last year. The figures speak for themselves. There is no need of saying anything more.

The Unheated Greenhouse

THROUGH our Readers' Service and because of the conservation of fuel come many inquiries about the possible operation of a greenhouse without heat. In New England it is not practical during the severe winter months owing to the area of glass exposed without means of protection from the outside elements. The outside temperature and that of the greenhouse at night would be little different. A hotbed with considerably less glass surface exposed can be covered with mats, hay, or even leaves at night, thus maintaining a growing temperature. During the winter months a hotbed would be more successful than an unheated greenhouse.

Regarding spring and fall uses, however, there are real possibilities. Quick maturing crops such as radishes, spinach, cress, etc., may be started, using manure liberally in the benches to help retain the heat in case of light frosts. Should frost catch them spray the plants with cold water to thaw, and cover them to exclude the early morning light. In the spring any of the garden crops can be started in an unheated

greenhouse as early as February 1 by using hot manure in the same manner as in the hotbed.

One of our readers asks whether green food for chickens can be grown in an unheated greenhouse. Anything of this kind must have a growing temperature, the minimum forty degrees; and it would be impossible to maintain such a temperature in an unheated greenhouse. However, there is a solution to this problem in the commonly used oats sprouter. This consists of a series of perforated galvanized trays supported by a framework with a drip-pan at the bottom There is hardly any labor attached to the process of raising green food for chickens with one of these appliances. Simply cover the bottom of the tray to the depth of one inch with oats for sprouting and spray twice a day, or more if they become dry. The drip-pan catches the water that may possibly soak through the several trays. No earth is needed. In a very few days the oats will have sprouted to the height of three or four inches, at which time they are the most valuable as a green food. One square inch is sufficient for a hen. It is advisable to fill the trays at an interval of a day or two, thus maintaining a continuous supply of fresh, green food. Place the oats sprouter in front of a sunny window in the kitchen. Cellar air has not enough life for the successful operation of the oats sprouter. They can be purchased at any large poultry store.

Some years ago an owner of a country estate on Long Island spent considerable money in trying to grow vegetables in an unheated greenhouse. He had expert advice from engineers who told him that by going deep enough with the foundations and having sufficient openings in the lower part, he could secure heat from the earth which was always warm at a certain distance down. The experiment proved to be a complete failure.

Cotoneaster multiflora calocarpa.—After another season's observation this plant, growing in the Arnold Arboretum at Jamaica Plain, has demonstrated its unusual worth as a garden plant, especially for a late summer display. Its fruit, which ripened in August, was produced in such enormous numbers as to weigh the lower branches to the ground, and to make the shrub appear from a distance like a great red ball. The fruit began to color before the end of July and was held a long time. This Cotoneaster has blue-green leaves and white flowers in compact clusters. The flowers stand well above the arching stems so that they make a good display. It would be hard to find a more graceful shrub or one which is more delightful in the way it carries its flowers. It proved itself perfectly hardy last winter. Another Cotoneaster, C. soongarica, is fully equal in most respects to the plant just described. It, too, made a wonderful show of fruit this year. It has proven its value, both as a spring and a late summer shrub. Both plants will doubtless come to be familiar in gardens all over the northern United States.—*E. I. F.*

Tree-vaccination Worthless.—Claims that the insertion in the bark of trees of capsules, containing potassium cyanide and other substances will kill scale on the trees or serve as a remedy for any disease has led to a fine of $100 in the Federal courts upon the makers of a "fertilizing scale treatment," who pleaded guilty to the charge of misbranding and adulteration in an action brought under the Insecticide Act of 1910 at the instance of the United States Department of Agriculture in the Eastern District Court, Pennsylvania. The department tested these capsules for several years on fruit trees to determine whether their use had any deterrent effect on scale and whether the material also actually fertilized the trees as asserted by the makers; and found that they did not kill scale and did not fertilize the trees, but on the contrary, injured the tree causing large cankers through which rot fungi may enter and finally destroy the tree.

Storming the Iris Foe's Trenches.—Early in 1917 our Iris germanica began to show yellow stalks, to decay at the crowns of the bulbs. Pulling away a yellowed stalk, we found clinging to its butt a big, yellowish, dirty, but very efficient appearing grub. Examination of an infected stalk showed that a moth had incised it, depositing between the green layers, well protected, her eggs, about ⅛ inch in length. The larvae from these, hatching, had bored straight down the stalks, growing as they gnawed, on the bulb crowns, there to chew and chew. One bulb hollowed out, they went to the next. And so on. Clearly poisons were of no avail, as the pest was covered all its life. What was to be done? We solved it by cutting out each gnawed bulb, exactly as one cuts out apple tree borers. By being ruthless in pulling yellowed stalks and by using the knife freely on gnawed bulbs, we routed the foe. Clean tilth helped. Air-slaked lime made the cuts heal and wood ashes and soot helped to make it unpleasant for the routed pests that we missed when they crawled out to seek new pastures. We won. Now for something better than cure—prevention: (1) Plant Iris only in soil that has been cultivated at least two years. None of ours on old soil were attacked. (2) Inspect stalks each day and on the first sign of an attack, cut, intelligently, but thoroughly. (3) In fall see that each flower stem is off the bulb crowns and *burned* before October 15th. These hollow tubes are handy lurking places for these pests. (4) Lime the base of the germanica Irises. (5) We found the Spanish, English, Persian, Siberian, Japanese and native Iris (blue flag) immune. (6) The pest, forcing us to fight it, so made us put our Iris clumps in a thorough condition of defense. Fighting one pest, we fought all. The few germanicas we lost have been offset by the betterment in all the other kinds, due to finer defensive culture.—*Estelle M. Gilbert, Binghamton, N. Y.*

Cotoneasters are valuable for their brilliant show of fruit. C. multiflora calocarpa is shown here laden with white flowers. The fruit becomes evident about midsummer

Handling Gladiolus Bulbs.—I would like to interest you in my way of caring for Gladiolus bulbs. The first collecting of material is the trying part. I have about 50 named varieties and wish to keep each variety separate, as the pleasure of knowing each so intimately as to call each by its proper name—is one of the pleasures of growing them. I make two plantings 15 to 20 days apart for a succession of flowers, for this about one hundred 5-lb. sugar bags are required, one hundred copper wired three-inch labels, and one hundred painted garden labels, about ten inches in length, two of each of the above for each variety. On the bottom of each bag I wire a label fast and write the name of variety plainly. When I dig the bulbs, cut off the stalks to one and one half inches, drop into bag with the garden label, and tie the top of bag, the increase (small bulblets) are secure. There is no dust or dirt while they are drying. Later, when cured, trim off the top of old decaying bulb and replace in bag. In this way they are easy to handle and store, and in the spring easy to sort out. One bag of each variety for the first planting, using the garden label for the ground. One-third or one-half dozen of each variety makes a good number to start with. The bags, labels, and garden labels, do service year after year, and who can gainsay that the "glory of the garden" is worthy of all the care we can give.—*Mrs. G. W. Bain, Nassau, N. Y.*

An Emergency Garden.—I want to tell about a little garden I made this spring that has aided me so much in feeding my family. My husband raised potatoes, roasting ears, peas and beans in the field but I wanted a kitchen garden all my own. Just outside the yard at one side of the house was a strip of ground that had once been an alley, 25 x 120 ft., but for the last three or four years it had been used for a calf pen. Judging from the size of the weeds that grew it was very rich. There were eight beds the full length of it. In one of the beds I planted a double row of onions early in March. The same day I planted in another bed, lettuce, radishes, mustard, turnips and spinach. And in still another bed I planted double rows of English peas, some of them dwarf. The first of April I planted in the fourth bed, beets, carrots, okra and a few early bush beans. The middle of April, tomatoes, squashes and more bush beans were set out. Elsewhere I planted watermelons. Before long I found that ground mice had eaten all my melon seed so I planted them over, putting in one tablespoon of sulphur in each hill and the mice did not molest them any more. When I worked my onions the last time I set cabbage plants between the rows. I also planted a hill of Crowder peas between each hill of watermelons. I have enjoyed the fruits of my labor, having had all kinds of vegetables and watermelons. There is not a foot of my garden idle, all is

This is evidence of the fruiting proclivities of La France everbearing raspberry. About one-sixth actual size

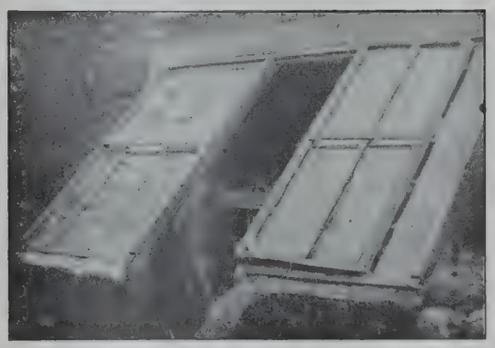
planted in something. As soon as one vegetable is out another is planted. I keep the green worms from eating my cabbage by sprinkling them while the dew is on, with lime in which I put a little sulphur. Never will I do without a garden again for it has been a great pleasure to me and a great benefit to the whole family.—*Mrs. S. E. Bandy, Jacksonville, Ark.*

"Speaking of Raspberries."—The article "Raspberries for Where You Live" in the October issue leads me to feel that you might be interested in the new everlasting La France. The history of this variety goes back some twelve years when a wealthy private estate owner imported a collection of fine French raspberries, all of which from a combination of accidents succumbed to the climate. While clearing the old plantation, a number of seedlings were discovered, of which this is one. The foliage first drew our attention, it is so large and heavy. Last winter the plant withstood twenty below zero. With its robust constitution it combines a bearing power the like of which I do not recall. Each plant will make several new shoots during the season which will bear fruit the first year. The berries are almost twice the size of other everlasting kinds of fine aroma. The fact that the plant is almost free of thorns should make this raspberry a welcome addition to the home garden.—*H. John Scheepers, N. Y.*

—We can vouch for the high quality of the fruit and the large size too, having seen a number of plants in full bearing the second week in October. It was noted that the berries were slightly bitter if not dead ripe.—*Ed.*

Getting Rid of Mice.—Answering the question on page 179, May: The field mouse is a hard pest to defeat; as he eats high priced bulbs with impunity the effort is worth while. It can be done by the use of strychnine. Three methods are recommended. In one the food is coated with starch or flour paste containing powdered alkaloid of strychnine, in another the food is soaked in a sulphate of strychnine solution, and in the third it is mixed with starch containing the alkaloid and is then compressed into squares of biscuits. Grain soaked in sulphate of strychnine solution is very bitter and is not recommended except when the bait is first soaked in tallow to render it waterproof. A sulphate solution is valuable in preparing baits for rabbits and meadow mice. Starch or flour paste containing powdered alkaloid is recommended, because baits coated with these materials can be prepared much more easily than those soaked in sulphate solution, because animals carrying coated baits are often killed simply by the absorption of part of the poison directly into the blood through the mucous membranes of the mouth and cheek pouches, and because the centres of kernels of coated grain remain sweet and are more freely eaten than those made bitter all through by soaking in sulphate solution. To make flour-coated wheat use: wheat, 20 qts., strychnine alkaloid (powdered), ¼ oz., flour, ¾ cup, water, 1 qt. Mix the flour with a cup of cold water to form a thick, smooth, paste, and then stir in the remaining 1½ pints of cold water. Heat to boiling point over a slow fire, stirring constantly. Then remove from the stove, mix in the powdered strychnine alkaloid, and mix with the wheat until every kernel is evenly coated. Spread and dry the preparation, and it may either be used at once or kept indefinitely.—*H.*

A Greenhouse Without Fuel.—We have a little greenhouse 8 ft. square and 6 ft. high which supplies us with plenty of blooming plants for our house all winter and provides from 10 to 20 dozen Geraniums, Marguerites, Salvias, etc., for summer bedding. This winter it is to supply us with some vegetables too:—lettuce, tomatoes, watercress, grown as Mr. L. Bastin told about in the August Garden Magazine. Though most of our days are sunny we get cold nights, sometimes several nights in succession zero, occasionally 10° to 15° below and as many as 3 or 4 days without sunshine. Still it has never been necessary to artificially heat this little greenhouse made by excavating in a very steep bank close to our house and facing south. This was lined 6 in. thick with concrete. In the opening or front there is a concrete wall 2 ft. high. All the rest of the front is glass, sloping at an angle of 45° to meet the roof. In the



In this little greenhouse without any fuel summer bedding plants are carried through the winter

concrete floor are tracks running north and south made of ½ in. gas pipe. The benches are fixed on a stand with groved pulleys for wheels which run back and forth on these tracks. These benches are terraced like wide stair steps, so arranged that when the stand is wheeled forward all the plants are brought near the sloping glass front. Each bench has about 12 sq. ft. of surface, making on the three a total of 36 sq. ft. Thus almost the whole contents of the greenhouse are easily moved close to the glass front for sunshine and back to the warmed air space at the back at night. The warmth received from the sun through the glass front during the day is absorbed by and stored in the concrete walls and ceiling which is all back in the hillside like a cave. The concrete in turn gives back this heat to keep the plants warm at night. Last winter I kept a thermometer directly under the glass and I have never seen it lower than 42°. Of course this is lower than the air surrounding the plants. We cover the glass with a heavy canvas on cold nights. A piece of stove pipe through the concrete roof serves as a ventilator. If you want a greenhouse and you live in a sunny climate do not hesitate because of fuel shortage!—*K. N. Marriage, Colorado Springs.*

Another Successful Vegetable Garden.—I have just read an article by Mr. R. C. Allen of Morgantown, W. Virginia, in The Garden Magazine for October last year, in which he gives record of a garden 60 x 75 which produced $96 worth of vegetables. This spring (February) I burned off a broom sedge and white clover field, which had not been cultivated for seven years. On one portion 50 x 75 ft., I used one load of barnyard manure and $5.68 worth of seeds during the entire season, during which time I sold $21.64 worth of vegetables; canned 326 quarts of soup mixture, tomatoes, beets, pickles, and beans at an approximate value of 20 cents a quart or $67.20 for the whole. The vegetables used at home bring the entire amount produced during the season to $155.19, with seeds and fertilizer to be deducted. The garden was plowed and disked by the mill company for whom I work; but every particle of labor of cultivation I did myself when off duty. Three crops were produced during the season. The first was English peas, mustard, onion, kale, lettuce; followed by beans, tomatoes, okra, beets, corn and popcorn. When the popcorn was harvested English peas went in the place. Already the third crop consisting of 150 heads of Big Boston lettuce, kale, onions, mustard, is maturing. Two raised beds, 2 x 75 ft., of white mustard and spinach, insure late winter and early spring salad. There are intercrops of Danish Ballhead cabbage and brussels sprouts. I have kept a government record book of these.—*Linda Clement, Lexington, N. C.*

Oxytropis.—Having received so many helpful suggestions from The Garden Magazine, I venture to offer one or two, and to also ask for more help. A correspondent in the July magazine asks where Oxytropis may be obtained. In reply I would say that Dreer of Philadelphia catalogues it.—*G. H. S., N. J.*

Fothergilla.—Years ago an attractive shrub known as Fothergilla was not uncommon in gardens. Then it practically disappeared and was not seen for a long time. A few years ago the Arnold Arboretum in Jamaica Plain resurrected this plant and again put it into cultivation. It is to be hoped that they will become common subjects in American gardens as they are highly ornamental. The Fothergillas are related to the Witch Hazels, the foliage having a similar appearance. It also has the Witch Hazel's habit of putting on warm shades of red and orange in the fall, making it a very decorative shrub at that season. The small white flowers grow in terminal clusters which are almost as round as a ball. The plants are upright in growth, sturdy in appearance, and are perfectly hardy. They grow fairly tall, and possess a greater beauty than many of the shrubs more generally seen.—*E. I. F.*

Fothergilla major has the best pyramidal habit of all the Dwarf Alders. Its conspicuous flowers are white

Flower Holders and Flower Arrangement

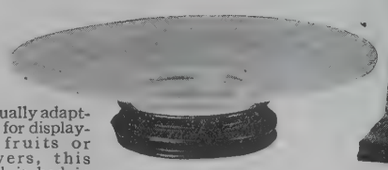
Making the most of the Decorative Value of the Gardens Products—Suitable Holders and Vases

ROBERT KIFT

Vase of Moss Aztec pottery, of rich red tones upon which are superimposed imitations of apparent mossy deposits

The individual flower holder of the "candlestick" type so effectively used in displaying single flowers

The alternating lines of clear and engraved glass upon a black glass base are the features of this bowl



Equally adaptable for displaying fruits or flowers, this bowl is had in either blue or yellow glass

Another type of individual flower holder of Moss Aztec ware, so named because of its rich "ancient" style

Richly colored jardiniers of this type are useful for holding large ferns and palms in pods

THERE are no more beautiful cut flowers than those culled from one's own garden. As seen growing in the ground in their natural glory of form and brilliant coloring, they have far more than repaid their slight cost and care. For the decoration of the house; adding a touch of color here and there; always a vase on the dining table, a few in the guest room, a bowl of blossoms in the hall, on the library table, etc., there is at all times in a well planted garden a storehouse to draw from, each week something new, from the Snowdrops and Crocuses until the last of the Chrysanthemums just before the winter blanket of snow, and even then the late berried shrubs.

The soft tints and subdued colors of this vase blend well into the furnishings

While the chilly blasts of winter are still in the air it is possible to enjoy some of the spring shrubbery, branches of berried and evergreen shrubs will give gaiety indoors in December. Pussy Willow sprays if cut as early as January 15th placed in water in a warm room, will swell their buds in about two weeks. The brown sheaf which covers the bud should then be removed, when the sprays from end to end will be found covered with their beautiful silken tufts. When they have attained full size, they will last much longer without water, which if allowed to remain encourages the buds to open and shed their yellow pollen which is objectionable.

The Forsythia is another shrub, which forces well, opening its lovely yellow blossoms in from two to three weeks in vases of water in the house from January 15th on. Magnolias will also yield to such treatment, as will apple, cherry, pear, and peach blossoms, these latter fruit buds should be cut about February 15th and later for the best results.

The Japanese bamboo handle basket is admirably adapted to display quantities of coarser flowers, and blends especially well with those of yellowish or brown tones

This type of vase is adapted to displaying the daintier flowers of the daisy type

Japanese vases are ideal for the arrangement of the shrubbery. The Japanese never crowd their floral arrangements. Just a well flowered branch or two is considered sufficient. Where a color effect is desired, a generous bowl well filled, but not crowded, will be found very decorative. When the spring bulbs are in, Daffodils and Tulips are especially valuable for the dining room. The low shallow bowls with various styles of perforated holders are now much in vogue, very pretty effects being possible. Natural-looking artificial butterflies and birds, stuck on the edges of the bowl as if just alighting or hovering over the flowers, give a pleasing touch of nature. These can be adjusted and changed as desired, Shrubbery and the early Rambler Roses provide sprays of grace and color that arrange beautifully.

A few flowers displayed individually is not only an economy of material, but exhibits their character to the fullest

Japanese flower bowl with movable glass flower block to hold stems gives scope to a variety of arrangements. Bird and butterfly ornaments adorn the side of the bowl

KEEPING CUT FLOWERS FRESH

An important feature in the use of garden flowers is that before being placed in vases they should remain over night with stems well immersed in water in a cool place free from draughts. If this is not possible then a similar treatment for a couple of hours will be of great benefit. The object of this is to get the stems and flowers filled with water. When freshly cut flowers are placed at once in a warm room or in a position subject to draughts, their natural moisture is evaporated faster than they can take it up, but when prepared as suggested, they open out gradually and mature as on the plants.

When flowers of almost any kind have been filled with water as above described, they will continue to develop even if their stems are not immersed for more than aninch in water.

TYPES OF HOLDERS

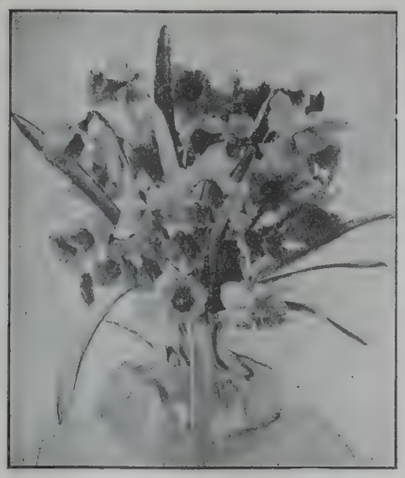
Following after the Japanese a number of the Art potteries of this country are making a specialty of high and low vases and bowls with figure holders and perforated blocks especially adapted to the artistic arrangement of cut flowers.

The tall narrow vase into which are crowded a dozen Roses is now relegated to the shelf. The low bowl with the various movable perforated block centres will permit the arrangement of the same number of flowers and in such a way that their beautiful foliage sets off the buds to greater advantage.

A beautiful effect with a generous sized shallow bowl, is to place the holder at one side, fill with Roses and then break two or three in various

stages of development but fairly well open and float them on the surface. One or two with stems in the water and buds just over the edge give a generous touch.

In all arrangements of cut flowers, there must as in a picture, be foreground, so as to get perspective. Some should be high and others low, the opening buds and spikes elevated while the fuller flower blossoms make the background.



For the top-heavy Daffodils, select a bottom-heavy bottle-shaped holder

Roses feel most at home in the straight stem glass or silver vase, displaying the individual beauty of each specimen

The Japanese holder in center of white porcelain bowl is ideal for staging Sweet Peas

The arrangement in a vase of a number of Peonies, for example, can be done quickly and quite artistically by simply laying the flowers together at the stem ends. Generally they vary in length but if all are the same, cut from four to six inches off the stems of the most open. Place them all together in the vase and the mass will fall gracefully apart, the larger flowers being considerably below the buds.

Peonies should not be placed subject to a draught, or they will soon wither away. There are many flowers of the garden with soft spongy foliage, Heliotrope is one, which fouls the water almost before the day is out. Asters and Chrysanthemums will scarcely stand in water over night without an offensive odor. It is of course advisable to change the water every day, but if a spray or two from a dashing bottle, with ten parts of water and one of formaldehyde is used in every jar or vase, the water will remain sweet for several days as the formaldehyde prevents fermentation.

COLOR HARMONIES

Color combinations should be studied as many pretty effects are possible. The light blue vase or bowl filled with pink Roses, Snapdragons, Asters, is an example. Marigolds with purple Iris or dark blue Larkspur are effective.

A shallow bowl filled with short stemmed flowers from the rock garden may contain all the colors of the rainbow—a harlequin effect and yet be in excellent taste.

In the fall, Pompon Chrysanthemums from the borders come in a great variety of colors but any three or more arrange together without discord.

When the Sweet Peas are available they are especially favored for the table. They can be arranged with good effect in the shallow bowls with perforated holders. A little of their foliage is a great addition. For a luncheon table a tall slender vase in which is placed a generous bunch of the largest stemmed flowers forms the centre. Pink is preferable. Five or six low vases (small rose bowls with contracted openings are best) are placed at equal distances in a circle six inches in from the plate line. Fill each bowl with medium length sprays, then make a curved spraying on the cloth from the inside of one bowl to the outside of another starting with one spray and some green and widening out to look as if the flowers were falling out of the rear bowl. The effect is an irregular wreath and quite pleasing. At Hollyhock time, and later for the Golden Glow, the blue umbrella jar makes a good vase for these long stemmed flowers.

Wall pocket vases are effective in many places and bamboo rods pierced with several openings having pockets lined with zinc water receptacles, are used alongside the mirror or against the wall where such a decorative effect is desired. Such accessories to the garden indoors will appeal to those who are searching for useful gifts in the coming holiday season.

Wet-Blanketing the Weeds—In a very wet season keeping down the weeds is a difficult proposition, so much so that hoeing doesn't seem to disturb them perceptibly; most of them will keep right on growing. The most effective way I found, among the corn, beans, tomatoes, etc., was to turn everything top side down with the spading fork. This left a fresh, clean surface with the weeds all buried where they would soon rot.—*F. H. V. Ridgewood, N. J.*

A new type of Rockwood Porcelain in tints of hitherto unattained daintiness. The subdued tones blend well with any color in flowers, though the choice of tints in the porcelain is wide enough to make appropriate matching easy

While We Prune the Orchard

EDITH M. PATCH
Entomologist, Univ. of Maine

What to Look for as We Ply the Saw and Knife to Reduce the Insect Pest of Next Year. Some Winter Shelters that Can Be Gathered In.

THE business of autumn is over. Fruit and vegetable are stowed away in glass jar or box of sand, each according to its need. The garden plot has received its late plowing. The winter preparations, as necessary to man as to squirrel or field mouse, are completed. With a feeling of relief we look ahead to a lull in the activities of country life between now and the impending rush of spring duties. The peace of winter is with us and a quiet sense of well earned rest steals over us. Relief? Yes, while we catch our breath. But a bit later we miss the outdoor and a touch of uneasiness is upon us. Is our peace indeed secure? If not it is worth fighting for, be it horticultural or any other honest sort.

The woodpecker is tapping in the orchard and cheerily from the leafless boughs a bird with a black cap calls, "Chick dee dee, dee dee, dee dee!' '

Our staunch allies! They know the spot for a winter campaign and what slacker seats himself by the open fire with idle book while sturdy birds proclaim that joy as well as duty are to be found in the frosty air with its stimulant for both mind and body?

Now is a convenient time to gather up the egg masses on fruit and other trees. From left to right: (a) antique tussock moth not protected by covering; (b) ring of forest tent caterpillar, a common pest; (c) egg rings from which orchard tent caterpillers hatch

SO OUT come ladder and tools and we prune the orchard. We have been overshadowed, perhaps, by general troubles and personal worries but, for the time being, the winds blow such clouds where they list and we feel fit for the task that is also a pleasure. The ripping voice of the saw and the clip of the pruning hook reply to chickadee and woodpecker,—a strange quartet making appropriate music of the hour.

With a proud sense of being judicious we select the branches that must fall if we shape the tree for grace as well as strength and have in mind the proper distribution of sunshine among summer leafiness of boughs.

But all the time we know that it is not simply remodeling the orchard that we are about. The side issues of that operation are no less important than what we speak of as the main item and it is a wasteful person who neglects the by-product of any enterprise.

With eyes alert we glance up and along the branches and with a smile we recognize, in the large gray-brown object securely woven to the under side of a twig, the cocoon of the cecropia moth. Destroy that? Well, not while there are any kiddies, young or old, in the house. We'll take that treasure box of snuggly woven silk in to the warmth. Later on some day we shall hear from inside it the sound as of a mouse nibbling and know that a newly hatched moth has broken the pupal cell and is making its way out through the walls of its prison. Have you ever tried to tear one of these tough structures with your strong fingers and wondered how so frail a thing as a moth succeeds in making its escape? On each shoulder it wears a tiny sharp edged tool and with these it cuts an opening through the enveloping fibers. 'Tis worth the task of a day's pruning alone to win the pleasure of watching that wonderful creature emerge from its winter nest and cling by its downy legs while its soft limp miniature wings increase in size. The veins in them are swollen with an amber fluid which rushes into them in the process of rapid growth. Even as you watch you can see the wings expand, the color pattern spreading its area, the four small wabbly flaps become four broad wings which hang quiet, except for an occasional shift, while the moth bides the night time for its first flight.

No, do not destroy the cocoon of the cecropia moth unless you have become so inured to the sight of beauty that you have no further need of seeing colors that the richest oriental rugs or pan velvets can not rival.

Brown-Tails in Folded Leaves

BUT what is that swinging from the tip of the branch? A few crumpled leaves woven together and bound to the twig by silken strands. Another cocoon? We cut into the gray silk and find within soft lined cells packed with tiny caterpillars. Brown-tails! These trees were neglected last August or an arsenical spray would have quieted those larvae before they spun their cosy hibernaculum. Marvelous that they can withstand the winter temperature, these caterpillars still so young that they measure only about one fourth of an inch in length. They are well provided by nature for their struggle for existence, fit to survive if the measure of their own needs only is to be considered. Yet it is no perverted appeal to the law of necessity we make when we say the brown-tail must die. A threat against our food supply, a foe to our physical comfort, a menace even to life, swings from the tip of the apple bough. They are from one hundred to three hundred strong within that single silken fort for they pack themselves tightly when they spin the sufficient barrier between them and the winter day. Yes, on two scores this hunnish enemy must die, its greedy appetite, dormant just now, must be checked before it revives to bring disaster to the unfolding leaves next spring; and the poison barbs hidden among its hairs must not be given an opportunity to scatter broadcast the affliction that follows wherever the moulted skins of these dangerous pests may chance to blow.

Then clip off that winter-nest and throw it into flames,—what could be simpler than that? Well, in these complicated days few matters can be settled so directly. We remember, before that "hibernaculum" is destroyed, that the Government to which we pay taxes has spent a deal of money importing, rearing, establishing, and liberating parasites to prey upon the caterpillars of the brown-tail moth, and more than one species of these parasites seek shelter in the firmly woven nest of their victim for an over-wintering home. They are thus handy by when the caterpillars feed in the spring and grow to a proper size to be killed.

THUS it is if we burn the winter nest of the brown-tail we are likely to destroy some of the best of our allies. So we gather the nests and keep them in an old keg until the parasites thaw out in the spring and take wing. In order that the caterpillars do not escape, we apply a band of sticky "tree tanglefoot" around the keg. Why go to more trouble liberating parasites than it is to spray the orchard in August or to gather and burn the winter-nests at pruning time? We might, perhaps, ask this question if the brown-tail was confined to apple trees, for, serious as the pest is, it is not difficult of control under orchard conditions. But, as we know, the caterpillar progeny of this moth accepts a range of forty and more trees and shrubs for their menu. Thus, in infested areas, Rose and other bushes and certain shade trees on home grounds and in parks, Wild Cherry tangles in neglected corners, the hardwood groves about summer resorts, and the forests themselves,—all stand helpless before a small moth with snow white wings and a tail tipped with a plush brush of beautiful golden brown.

So, though we may care for our orchards with spray and pruning shears, it is to the parasites we must look in large measure for relief in forest areas and well they deserve the encouragement of individual orchardists as well as of the Government.

The beautiful creature that emerges from the cecropia cocoon, half natural size

This is the tough cocoon of the cecropia moth

The white marked tussock moth egg mass is distinguished by the frothy covering

And while we pause to express our thanks to the minute allies with transparent wings, the tap of woodpecker and challenge of chickadee remind us that an army with feathered wings is also in reserve. Surely the hospitality of the orchard is due them and with a real sense of shame we remember that we have not put out the winter fare of suet.

Well, that shall be attended to as soon as the orchard is pruned and we resolve also that the New Year shall find us busy planning for bird houses with cat-proof shelves, for the anti-caterpillar army must have suitable camping grounds!

Men have but begun to use wings in battle, though in our behalf bird and beneficial insect have waged a war through the centuries that has meant a balance of power without which we should have had no more trees in the world than the huns have left in the areas they have devastated. For borers work within and scale insects work without the bark while caterpillars strip the foliage; and what saved vegetation for us so that to-day we have any orchard to protect with pruning hook and sprays?

It is well enough for us to think about these matters while we prune. It gives our own efforts an added force to feel that we are not alone in our movement for better fruit. What though bird and beneficial insect be as selfish in their aims as we? They toil only for their own food as we for ours but their help is none the less effective for all that. That their methods are based on fundamental needs is indeed a guarantee that they have been evolved along stable lines.

Where the Tussock Moth Hides

AFTER a bit of some such orchard philosophy our attention drifts to four objects attached to the twigs. We have already collected the cocoon of one species of moth in which the pupa slept, the hibernaculum of another which sheltered the dormant caterpillars awaiting the reveille of spring, and now we find egg masses of four other species challenging us. For in three different stages do the various moths of the orchard winter,—pupa and partly grown caterpillar and egg. And they all withstand below zero temperaturé though it surprises us every time we think how life, seemingly so delicate, can winter exposed to elements which hold sturdy trees dormant for months. Well, the insects lie dormant, too, in one stage or another; and it behoves us to be alert while they sleep if we are to take the initiative in the campaign.

The four egg masses before us now are of interest as they show the close resemblance of related species and yet the distinctive characters due to specific differences.

Winter Lodgers in the Orchard and How to Destroy Them

Winter contact sprays, when applied for scales, soak into cocoons and kill the pupae. Spring poison sprays are effective. Burn infested branches which are pruned off.

FRUIT-TREE LEAF-ROLLER. Egg-mass on bark in winter. 10 per cent. kerosene early in spring while tree is dormant.
OBLIQUE-BANDED LEAF-ROLLER. Eggs on bark in winter in flat patches. Same treatment as FRUIT-TREE LEAF-ROLLER.
LEAF-CRUMPLER. Hibernating quarters of larvae among crumpled leaves. Pick and burn at pruning time.
TRUMPET LEAF-MINER. Hibernates in fallen leaves. Destroyed by late fall plowing.
RESPLENDENT SHIELD-BEARER. Hibernates in queer, tiny, oval, seed-like, yellowish cocoons attached to bark. If very abundant, scraping trees is practicable.
WHITE-MARKED TUSSOCK MOTH. White froth-covered egg-masses on empty cocoon in winter. Gather and burn.
ANTIQUE TUSSOCK MOTH. White uncovered egg-mass on empty cocoon, in winter. Gather and burn.
BUD MOTH. Over wintering in brown, dead leaves present at tip of twig. When pruning pick off and burn these nests.
CIGAR CASE-BEARER. Hibernates as a partly grown larva in tiny, curved, winter cases on twigs. Watch for these while pruning and be ready with arsenical sprays in spring.
PISTOL CASE-BEARER. Hibernates in pistol-shaped cases on smaller branches. Same treatment as for CIGAR CASE-BEARER.
RIBBED COCOON-MAKER OF THE APPLE. The white ribbed cocoons in which this insect hibernates, though small, are conspicuous against the branches.
APPLE LEAF-SEWER. Rarely troublesome in cultivated orchard as the hibernating caterpillars are plowed under with the fallen leaves.
APPLE BUD-BORER. Caterpillar hibernates in burrow. Clinging leaf petioles an indication of infested twigs the terminals of which should be pruned off and burned.
ORIENTAL MOTH. Hibernates in tough, smooth, oval cocoons attached to bark of branches near axil. Destroy cocoons at pruning time.
FALL WEBWORM. Hibernates in thin cocoon in crevice of bark or under rubbish near surface of ground. Arsenical sprays in spring.
TENT-CATERPILLARS. Watch for egg-rings while pruning. Remove and burn. Arsenical sprays in spring.
GIPSY MOTH. Creosote egg-masses in winter. Arsenical sprays in spring.
BROWN-TAIL MOTH. Remove winter-nests while pruning. Arsenical sprays in August.

Beetles

EYE-SPOTTED APPLE-TWIG BORER. Prune off and burn infested twigs before April.
CURCULIOS OR WEEVILS. Three species hibernate in rubbish in or about orchard. Clean orcharding is the best way to avoid tempting them to be present.
TWIG-GIRDLER AND TWIG PRUNER. Larvae hibernate in fallen branches. Gather and burn in autumn, winter or early spring.
FLAT-HEADED APPLE-TREE BORER. Larva excavates an irregular channel extending into sapwood under bark. Severely infested young trees should be removed and burned before May.
ROUND-HEADED APPLE-TREE BORER AND SPOTTED APPLE-TREE BORER. Where their "saw-dust holes" are observed, spear larva with wire. Apply alkaline washes May to July.

Crickets, etc.

SNOWY TREE-CRICKET. Eggs in punctures in bark of wounds.

Mites

LEAF BLISTER-MITE. The adult mites pass the winter hidden beneath second or third bud scales. Dormant contact sprays, as for scale-insects, give excellent results.
CLOVER MITE. Over winter on apple bark in masses of innumerable tiny round reddish eggs. Color renders them noticeable. Spray, while tree is dormant, with lime-sulphur.

Aphids, Scales, and Leaf-hoppers

APHIDS. Several species pass the winter as black shining eggs on apple twigs. Burn infested twigs which are pruned off. Order contact sprays for the spring campaign.
SAN JOSÉ SCALE. Small, round concentric. Contact spray (lime-sulphur preparations or oils) while tree is dormant.
OYSTER SHELL SCALE. Shaped like miniature curved oyster shell. Dormant spray with lime sulphur. June spray with "Black Leaf 40."
OTHER SCALES. Treat as for San José.
APPLE LEAF-HOPPER. Winter eggs, in bark of preferably two year-old wood. Indicated by small blister-like swellings. Spring treatment with contact sprays for nymphs.
BUFFALO TREE-HOPPER. Egg scars noticed at pruning time in uncultivated orchards. Many can be removed and burned. Cultivate orchard. Burn bordering low vegetation in spring.

The white eggs of the *antique tussock moth* are spread upon the outside of the empty gray cocoon. Each egg is separately placed and clearly defined against the background. It is here the mother moth laid them when she crept from the cocoon, a wingless bag of eggs awaiting the advent of her winged mate, after which there was nothing else in life except the deposition of those precious eggs. A brief and

In this silken chamber woven with the dead leaves lurks the brown tail moth

meagre existence but it fulfilled its function and the species continues. If we do not gather these eggs, from each (unless it be touched by parasitic wand) will hatch in the spring a grotesque little figure which will feed upon our leaves. Its appearance can not fail to attract our attention and call forth our admiring wonder even though we make haste for the arsenical spray. For this invader of our orchard wears a glistening black helmet decorated on each side by a brush of tufted black bristles. A similar bunch adorns its tail while on its back a row of four tufts like soft paint brushes adds to the strange appearance of this remarkable though unwelcome orchard guest.

When full fed (the arsenicals being neglected by careless orchardist) these caterpillars strip off their masquerade attire and weave their hairs into the fabric of the cocoon that hangs upon the tree all winter. Unlike the cocoon of the cecropia moth, however, this cocoon hangs empty since the moth emerges from the inside and spreads her eggs on the outside before winter sets in. Such conspicuous egg masses make the gathering of this species easy during pruning time. Some of them do not have eggs upon them, a circumstance due to one of two reasons. Either the inhabitant was a male in which case the cocoon is empty and harmless, or the pupa has been attacked by a parasitic insect which retains the shelter its victim spun, in which case the cocoon is occupied by a friend. So there is a double reason for leaving cocoons of the tussock moth upon the tree unless they are covered by eggs. At best it would be a waste of time and at worst we should kill an ally napping until the spring drive.

The similar cocoon near by is plastered over with what looks to be a mass of brittle white froth. That is the cocoon of the *white-marked tussock*, the wingless female of which emerges, like her cousin, only to mate and deposit her eggs. This moth, however, pours out a white protective covering over her eggs as she lays them and this substance gives an easy basis for distinguishing the two species in the egg stage. In the caterpillar stage they are as readily told apart for the larva of the white-marked tussock wears a scarlet helmet which renders its appearance even more grotesque than that of its black headed relative.

Army Worms in Rest Quarters

TWO glistening brown rings encircling a twig. The one with the more tapering ends is that of the *orchard tent caterpillar*. These eggs, if left upon the tree by us and if not destroyed by bird or parasite, will hatch into one of the colonies which build silken tents in the forks of the branches, tiny and filmy at first,

later to become the large untidy frass-filled shelters of the numerous family of caterpillars. For it is here they rest on cold and rainy days and at night when not feeding or while casting their skins at molting time.

The other egg mass with the abrupter ends is that of the *forest tent caterpillar*. This name is a misnomer for unlike its twin species it builds no sheltering tent and is so called merely because of the habit of its relative. It is, therefore, sometimes called the tentless caterpillar and with good reason. To be sure it spins, as does its cousin, but only a carpet for its feet instead of a covering for its body. When the light falls right you can see the white trails of these tentless caterpillars shimmering against the bark of the trunk and branches and along this silken path they retrace their steps to gather in company at molting time for though they wander apart they are gregarious by instinct at these critical periods in their growth and they can be found in congregations while waiting to cast aside the old raiment which displays the fresh garment underneath.

The two egg masses are much alike and so are the caterpillars which hatch from them. Both are golden brown with creamy white lines and decorations of pale blue. If we saw either singly and rarely this color scheme would be more admired but the large colonies are messy in effect and the individuals have a habit of dropping carelessly to our neck or clothing which is more startling than pleasing.

The first mentioned species has a continuous line of creamy white running lengthwise along the middle of the back and the other has instead a row of broken marks of the same color.

Like egg mass and caterpillar, the cocoons are much alike but still distinctive enough to be told apart; the latter species having a much more filmy outer cocoon about the snug yellow frescoed inner one. If the children are wondering what to do, by the way, set them to gathering a few of these caterpillars at cocoon time and bid them find out how the caterpillar paints his cocoon yellow. 'Tis worth watching yourself, if you have not in your own youth been fortunate enough to satisfy your curiosity on this point. A strange brush these larvae use and a paint as well adapted to their needs as the no more beautiful soft fresque tints that cover the ceilings of your own domicile, however wealthy you may be.

The two moths which emerge from the well built and well painted cocoons are much alike in color tone and general appearance yet different enough to be told apart.

Both species are common orchard pests and both can be controlled by a spring spray though it is well enough to clip the brown egg rings when you find them glistening in the sun at pruning time.

THUS one by one we read the signs of the times in the orchard. We watch for moth, egg, or caterpillar hibernaculum, or cocoon. We notice whether the scale insects on the twigs are abundant and what species are present. We look for the glistening black eggs of the various species of aphids which winter on the apple and take account of the reddish masses of minute eggs of the clover mite, a frequent invader of orchards.

Some of these pests call for treatment while the tree is dormant and enter into the winter's programme of every successful orchardist. Other insects we note in passing and decide whether nicotine sulphate would not as well be added to our list of orders as the arsenate of lead we always keep on hand for the great spring drive.

Altogether we take the ladder and pruning tools back to the shed with the realization that it was to no idle errand the call of woodpecker and chickadee wakened us from our idle doze before the tempting hearth. We await the spring now with a feeling of duty performed and information gathered which makes us indeed masters of the situation. Complacently, we open the book at the mark which kept our place while we pruned the orchard.

The Garden in the South

NOVEMBER in this region is the month for general preparedness for the spring drive; cleaning up; rehabilitation of soil, shrubs and trees; conservation of time in a thorough preparation of the soil; saving clean trash for a compost heap; setting out dormant plants, trees, and shrubs.

Cleaning up or setting the garden in order. Burn weeds that are obnoxious or diseased or infested with insects. Read also the article on page 118.

Rehabilitation of the soil by the sowing of crops for green manures. Alsike clover, vetch and rye, and Canada field peas can be sown now on all vacant plots, orchard, and vineyard. Scatter lime over the garden every three or four years—where vegetables are constantly grown the land is apt to get sour. Plow deeply and leave the furrows rough so that constant freezing and thawing of the ground will mellow it; and insects will be frozen out. Throughout the winter fresh manure can be scattered broadcast over the garden plots and fields, to be plowed under in the early spring.

Rehabilitation of the orchard and small fruit garden by pruning out all dead and diseased limbs and thinning out where the limbs cross each other and are too thick to let in the sun-light, trimming off the long canes of blackberries and raspberries, and cutting out entirely all the old canes. Setting out new trees and shrubs in vacant places or where others have died out.

Dormant planting should be done this month before the ground freezes. In the orchard apple, pear, and cherry trees can be set out. Also set out gooseberry, currant, raspberry and blackberry bushes. Most of the ornamental shrubs and trees should be set out now, but a few like Tulip Poplar are best planted in the spring, and all evergreens should be planted in March or late February. Peaches, plums and apricots or such fruit as have large kernels should be planted in the spring.

In planting dormant trees in the fall it is not necessary to water them; but one person should hold the tree steady and straight while another packs the dirt firmly about the roots with a pointed pole; and two poles should be planted a foot away from the tree on opposite sides, to which the tree should be tied to prevent its being loosened by the strong winds.

This preparation of the soil and rehabilitation of the fruit trees and bushes is great conservation of time. Conservation is the watch word now as labor is scarce and materials are costly.

Because of their food value the planting of nut trees is advocated, the quick growing varieties of chestnuts, pecans, and walnuts. The two latter are particularly ornamental trees and could be planted on the lawn.

There should be more apples planted; they are such a wholesome fruit both raw and cooked, and although the standards do not begin bearing for eight years—setting out an orchard is a good investment—and the small gardens could grow the dwarf apples which come into bearing earlier and take up one-fourth the space.

Grime's Golden is a yellow apple for early winter and a good eating apple. The Albemarle pippin adapted to special soils in Virginia is a most superior apple for all purposes; and the Winesap is a close second and can be more widely planted. Black Twig is also a good winter apple.

Saving of bean vines, grass clippings, old leaves, and all clean trash and piling them together for a compost heap is more necessary than ever—and if they are turned over several times, and mixed with well rotted manure and in the spring some acid phosphate added, no better material could be had for the renewing of the soil in the cold frames or to use in the garden.

The *dormant crops* in vegetable gardens are asparagus, cabbages, and lettuce. Get good strong roots of asparagus and plant them eighteen inches apart in a trench which is two feet deep and two feet wide—put six inches of well rooted cow manure in the bottom of trench, over this two inches of soil;—lay the roots cross-wise of the trench; fill in a little soil at a time. Asparagus roots have a tendency to push upward and therefore should be planted deep; the trenches should be five feet apart. Conover's Colossal is a good green variety and should have flat culture. The Giant Argenteuil is an excellent variety to be hilled up and use the white or blanched stalks. It is free from rust or other diseases. Set out one year old plants.

Set out the Early Jersey Wakefield cabbage plants in rows running east and west and in furrows quite deep, so that the earth hilled up on the north side will give protection in very severe weather. Set these plants fifteen inches apart and between them set a plant of Hanson lettuce.

For the flower garden the dormant things are mainly the Sweet Peas, Shirley Poppies, Arabis, Forget-me-not, Phlox Drummondii—in the way of annuals; and all perennials are best planted in the fall so they can get an early start the first warm days of spring.

Care should be taken not to put manure too close to *Rose bushes* and only well rotted, strawy manure should be put on the beds. Only the tender varieties should be protected in winter with straw or pine tags about them and this should be done after the ground is frozen. The object is to prevent the constant freezing and thawing which loosens the roots in the ground and so often kills the plant.

The *celery* must be continually banked up with earth as fast as it grows and in December pine tags or straw put over the entire bed and held down by planks or poles put on in a slanting manner like a roof, to shed the snow and rain.

The *indoor garden* needs constant attention. Vegetables and flowers in greenhouse, coldframes and conservatory should have air every day even in cold weather; and extra protection given in severe weather at nights. A thorough watering when needed is better than a sprinkling each day.

Lettuce in the cold frames can be forced to maturity for Thanksgiving if started in August and constantly feeding the plants with nitrate of soda or manure water between the rows of lettuce, and not allowing the leaves to get wet. Constantly loosen the soil between the rows. Keep on the lookout for lettuce worms and use slug shot to exterminate them. In order to prevent lettuce wilt put fresh soil in the frames each winter;—also give air every day. Bring plants to quick maturity by constant feeding. Way-a-head is a good winter variety which heads up readily.

Store vegetables for winter use either in cool cellars or kilns. Directions for making same are given in November number of 1916 GARDEN MAGAZINE.

Virginia J. M. PATTERSON.

Your Greenhouse with the 50% Coal Allowance

Economical Use of Fuel

Prepared for THE GARDEN MAGAZINE *by the United States Fuel Administration*

IN MANY fields of Flanders and Northern France, not even "poppies will grow between the crosses row on row." Desolation will mark those war-torn acres for generations to come. As the stricken lands now look to America for men, ammunition, fuel and food with which to free themselves of the enemy's yoke, so they may turn to us any day for seeds with which to reclothe their naked fields, and many finely bred plants would be lost if it were not for the greenhouses.

But the supply of fuel for greenhouse heating is limited, and it becomes the patriotic duty of every grower of greenhouse crops to make the best use possible of every pound of fuel whether it be anthracite coal, bituminous coal, wood, coke, oil, or gas.

As a rule, greenhouse heating plants are inefficient, owing to the fact that the firing is only a part of some person's duties, and the best use is not made of the fuel consumed. The amount of care demanded by a greenhouse heating plant is not great, but it must be given at regular intervals and special care must be taken when bituminous coal is used. This fuel is liable to form a film of soot on the tubes or fireways of the boiler, and records show that a very thin film of soot on the parts of the boiler with which the hot gases come in contact will, in the majority of cases, prevent the transmission of 25 to 35 per cent. of the heat of the fuel. Therefore, unless the boiler is kept perfectly clean, undue waste of heat will occur.

Economical consumption of fuel depends more on the proper regulation of the draft than on any other single factor. Every heater should be supplied with a check-draft damper in the smoke pipe, as well as the customary turn-damper. The check-draft damper is as important in controlling the rate at which the fire burns, as is the throttle of an engine. It operates oppositely from the turn-draft damper, in that it is opened to check the fire while the turn-draft damper is closed to check the fire. The coaling door of the furnace should never be allowed to remain open to check the fire, as this permits the entrance of cool air into the furnace and is very wasteful of fuel. The fire should always be controlled by manipulating the turn-draft damper and the check-draft damper and by opening and closing the slide in the door on the ash pit.

The method of handling the fire will, of course, depend to a large extent upon the kind of fuel used but the principles governing economical combustion should always be kept in mind. Heat that is allowed to pass up the chimney is heat lost. Every possible unit should be utilized to heat the water or to make steam or to heat air, depending upon the type of furnace used. When coal is used for fuel, the fire should be kept clean and excessive slicing or stoking avoided. A moderately thick fire spread evenly over the entire grate surface is in nearly all cases the most economical. The fire should never be so thin that portions of the grate are exposed, and should not be so thick as to interfere with the draft. Reasonably frequent application of fuel in moderate quantities is more economical than the application of large amounts of fuel at one time. When oil or gas are used as fuel, it is a simpler matter to adjust the fire as the adjustments may all be made by manipulating the burners. It should be remembered that a blue flame when burning oil or gas, indicates perfect combustion, while a yellow flame indicates poor combustion. Yellow flame usually indicates that too much fuel is being admitted.

Very economical results can be secured in bituminous and anthracite slack, provided the proper draft is supplied. By the use of special grates and with forced draft, greenhouses can be heated with these low grade fuels in the severest weather at a cost of about one-third that of high grade bituminous or anthracite coal. It is necessary to use grate bars with finer openings and as a rule the forced draft is supplied by some type of rotary blower forcing the air into the ash pit and through the fire.

The capacity within certain limits of any boiler depends very largely on the size and height of the stack. The accompanying table gives the size and height of stacks recommended for different size boilers.

RATING OF HOT WATER BOILER IN SQUARE FT.	SIZE OF STACK IN INCHES	
	Round	*Square*
400 to 700	8	8x8
850 to 1200	10	8x12
1350 to 2100	12	12x12
2400 to 3400	14	12x16
3700 to 5100	16	16x16
5900 to 8500	18	16x20

The height of the chimney or stack must be determined by the height of surrounding buildings or trees, whether the plant is located on a hill or in a valley, and by other factors. To insure good draft, it is necessary that the chimney extend several feet above any surrounding obstruction.

When a hot water heating system is used, the installation of a circulating pump in the return near the boiler will in most cases result in a very marked saving of fuel and will enable the operator to maintain a satisfactory temperature in the houses without undue forcing of the boiler. When steam heating systems are used, the installation of a return trap or pump to return the condensation to the boiler and to keep the system free from condensation, will in most cases result in a marked saving. Where installation of forced circulation apparatus is not feasible, a great deal can be accomplished by re-aligning the piping system so that uniform grade is secured, thus avoiding pockets which seriously interfere with the circulation. The installation of automatic air valves for the removal of air at various points in the steam system will help matters considerably.

Substitution of Cool Crops

Prepared by the Office of Information, U. S. Department of Agriculture

PRACTICALLY twice as much radiation is required to maintain greenhouses at a temperature of 70° to 75° as for houses to be carried at a temperature of 45° to 50°. With heating systems of equal efficiency this means that it will require nearly twice the fuel to grow warm crops demanding the higher temperature than will be needed for a crop like lettuce which may be grown between 45° and 50° F. As a fuel conservation measure the greenhouse vegetable grower can in many cases substitute cool crops for warm ones and enable himself to keep his plant in operation on the amount of fuel available.

Fall tomatoes when grown as a greenhouse crop require large quantities of fuel to maintain the temperature necessary to their development as the crop occupies the houses during the short cold days of early winter when the amount of sunshine available is very limited. Many greenhouse men regard fall tomatoes as a very uncertain crop as it does not yield as well as when grown in spring when the days are longer. The same is to a large extent true of cucumbers—and they require an even higher temperature than tomatoes. They are usually grown as a spring crop but those growers who produce this crop in the fall can, by substituting some cool crop, keep their plants in operation.

As possible substitutes for fall tomatoes and cucumbers, lettuce and cauliflower are perhaps the most promising crops. While it is true that the market is usually well supplied with lettuce there is a good demand for cauliflower.

Other crops that will thrive at comparatively low temperature and which may be grown in place of high temperature crops, are radishes, chard, beets, and dandelion.

Radishes are forced in practically all vegetable regions and as a rule are in considerable demand. It is, however, an easy matter to oversupply the demand for radishes. The temperature required is even lower than that for lettuce. This vegetable is not subject to attacks from many insects or diseases, and is on the whole very easily grown.

Beets may be grown in the greenhouse when the conditions are similar to those suited to the growing of lettuce. Greenhouse beets are in considerable demand both for the tops for greens and for the roots. They will, however, come in competition with stored beets and with those grown in cold frames in the warmer portions of the country and it is not probable that it would be safe to devote any considerable space to their cultivation without assurance that a market exists.

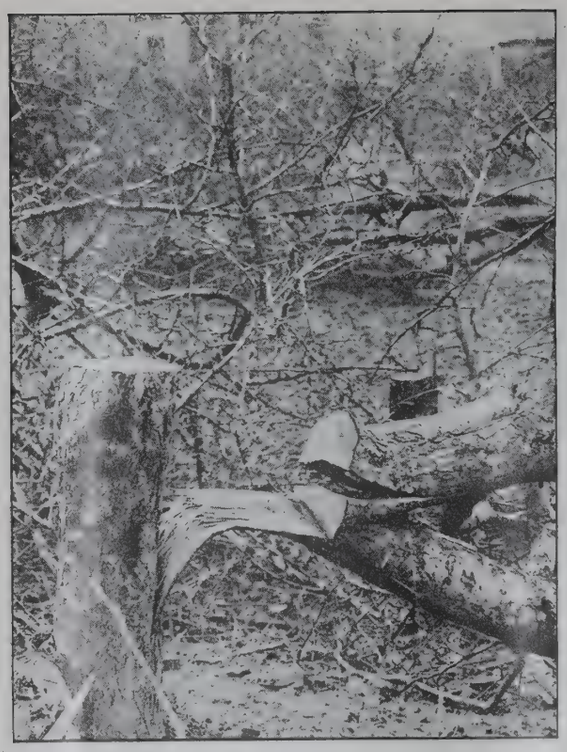
Swiss chard presents interesting possibilities as a greenhouse crop. This vegetable requires the same conditions as its relative the beet, but owing to its fine quality when used as a salad plant it should be useful.

The dandelion requires about the same conditions as lettuce, and is a crop that might readily be substituted for high temperature crops. The demand is somewhat limited, however, but it is worthy of the attention of vegetable growers who are lacking for substitute crops for cucumbers and lettuce. While greenhouse grown cauliflower comes in competition with the Southern, and California grown product it is altogether probable that the market will consume all the winter grown cauliflower that can be produced. This vegetable is a cool crop demanding a temperature little higher than lettuce. While the plants are small, intercropping can be practised using lettuce or radishes, which will be removed before the cauliflower attains sufficient size to interfere with these crops.

In the past the difficulty in securing good seed has deterred many from growing greenhouse cauliflower, and particular attention should be paid to securing seed of a satisfactory strain.

The grower of cut flowers and ornamental plants is not as a rule situated so that it is possible for him to substitute one crop for another as his stock must be provided and set in the houses before the forcing season. Roses and Carnations are planted in the house in midsummer. It is possible to carry both of these crops at lower temperature than usual, resulting in slower development, but in a better product.

Remaking the G



Typical destruction of a home orchard at Péronne. No military purpose served

THE accompanying photographs tell in vivid terms more forcefully than any words the tragic story of what has happened to the homes and gardens of northern France. This destruction of ornamental and fruit bearing trees, has all too evidently been accomplished with the malicious prevision of rendering permanent injury to the fair land of France and of handicapping the rehabilitation of the occupied territory. It offers also another opportunity for American gardeners to express practical sympathy.

Soon after the extent of this wanton destruction began in some degree to be realized a Committee of the Horticultural Society of New York was appointed to bring relief to the gardeners of France. A fund was opened and donations were made from individuals and from various Horticultural Societies and Garden Clubs. Arrangements were made for the distribution of the funds in France by the Paris Depot of the American Fund for French Wounded, through Mrs. Lathrop.

This organization undertakes to supervise all the work for the distribution and planting, under the direct supervision of Mrs. Mortimer Forest of St. Paul, Minnesota, a graduate of the Agricultural College of that state, and a successful fruit grower. Mrs. Forest generously undertakes to do all the work at her own expense so that *every cent* contributed to the fund of the Horticultural Society of NewYork is expended directly for the purchase of the necessary nursery stock.

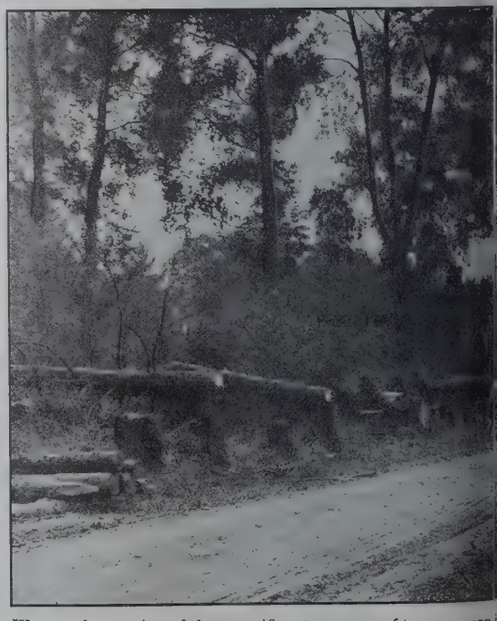
These arrangements were all completed last winter but t advance of the enemy came before any actu operations were opened, which perhaps w just as well, for the entire fund amounti to about $4,000 remains deposited to t credit of the American Fund for Fren Wounded with Morgan, Harjes & Compan Paris.

It is planned to make the necessary purcha of trees, buds, and grafts from the nurseries the neighborhood of Nancy, to be delivered

What is left of the magnificent park of the Chateau Pommery at Dreslincourt

Refugees return to their homes at Chateau Thierry where the American A the garden. The people find some co

Barbed wire accessory defenses constructed by the Germans in the gardens of Arny



Wanton destruction of the magnificent avenue of trees approa inte

rdens of France

notor-trucks and planted under the supervision f the owners assisted by French soldiers in est billets as soon as the evacuated territory ecomes available.

Fruit gardens thus planted will be suitably arked with the donor's name; and so far as ossible, the gardens of one village will all be lanted with trees paid for by the donation of a ven club or society, and suitably marked with iat organization's name.

In the meantime, awaiting the recovery of the land, the Horticultural Society of New York, in conjunction with the New York Florists Club, in May last, started a second fund for the up-keep of three motors costing $125 per month each. These motors which will later be used in the replanting work are now in service on the fighting line.

Organizations that have contributed in addition to the original subscribers are the Garden Clubs of Lenox, Mass., Bedford, N. Y., Hartford, Ct., Ruxton, Md., Albemarle County, Va., Lawrence, N. Y., Ridgefield, Ct., Short Hills, N. J., New Rochelle, N. Y., Greenwich, Ct., Plainfield, N. J., Litchfield, Ct., Horticultural Societies of Newport, R. I., Nassau, N. Y., Tuxedo, N. Y., Rhode Island, New Trier, Ill., Monmouth, N. J., West Chester, N. Y., Fairfield, Ct., The Buffalo Florists' Club, Chicago Chapter of the Wild Flower Preservation Society, American Society for Horticultural Science and The Wyoming Valley Chapter of the American Revolution.

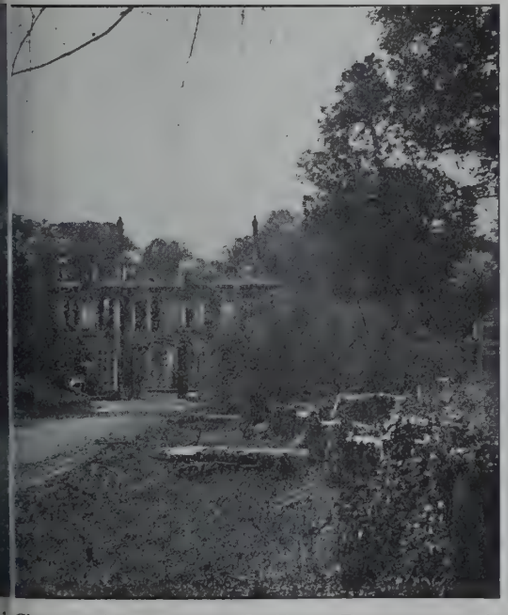
The subscription lists are still open for both funds and donations will be thankfully received either by Mr. Frederic R. Newbold, Treasurer of the Horticultural Society of New York or Mrs. Walter Bliss, Treas. American Fund for French Wounded, 73 Park Avenue, New York City.

There can be no better medium of expression of the sympathy felt by the gardeners of America for their fellow craftsmen in France than in contributing as liberally as possible to the Tree Fund of the Horticultural Society for restocking the gardens of France.

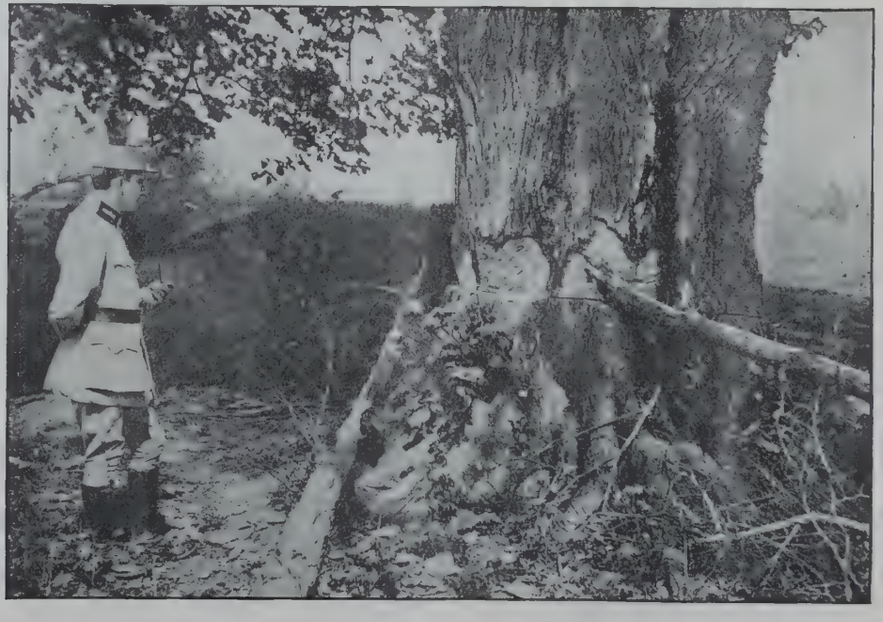
e their first big impression, to find everything destroyed but the flowers in and comfort in gathering the blooms

It was too much of a job to completely cut through, so this apple tree is girdled by axe blows

The destruction of the gardens that were around the homes at Fleury Martel



h Chateau at Robecourt, near Hombleux. These trees were of ne ame



An ancient Oak near Vaux which has been killed in the accepted fashion without troubling to cut it down

THE PATRIOTIC GARDEN

FOOD F·O·B THE KITCHEN DOOR

He also Fights who helps a Fighter Fight

EAT·FRUIT·AND·SAVE·SUGAR

EAT·NUTS·AND·SAVE·FAT

"Ready for Next Year"

That's How the War Gardeners Answer the Roll Call from Sea to Sea—1919 a Still Bigger Garden Year

IF ANY Central Empire or other foreign minister still has lingering hopes of putting over any peace notes in this country, it might be well for him to canvass the war gardeners for they too have a message for him and, keeping to the fashion set by President Wilson, it also is short and to the point. The message is this: "*We are getting ready for next year.*" And that is just what the gardeners are doing for (while you still hear the announcement of awards of canning prizes and the storage instructions are being studied with care) the home gardener of America is making plans for 1919.

* * *

At the Michigan State Fair in Detroit, 500 enrolled with C. E. Smith of the Forestry Department, DETROIT PARKS AND BOULEVARDS and Mr. Smith says he will have 50,000 war gardeners on his rolls before the snow is off the ground next spring. Similar reports from other places are coming to the National War Garden Commission at Washington all the time.

* * *

One of the remarkable instances of "get ready" can be found in the office of Richardson Webster, register of KINGS COUNTY, NEW YORK. Now the position of register of Kings County seems far removed from a war garden campaign but strange as it may seem Mr. Webster finds himself in the very centre of it. By virtue of his office Mr. Webster can put his finger on every vacant lot in Kings County. The people of Kings believe that slacker land will not win the war. Consequently they want permission to put that land to work. Webster is the man they go to. The line in waiting got so long that the register had to have blanks printed to keep up with his work. He is now giving out those blanks and enrolling war gardeners with the snow on the ground. Mr. Webster of course does not come in contact with the great army of gardeners who have land of their own.

* * *

Perhaps the most unique campaign for gardening in the country was conducted in NEW YORK CITY where "cliff dwellers" are not supposed to know anything about gardens except the ones on the roofs. But, like the Allied armies once they get going, nothing can stop the war gardener of Manhattan when he gets the rock cleared away. Park Commissioner William F. Grell believed something could be done and he appointed A. N. Gitterman, chairman of the War Garden Committee of Manhattan. Knowing the value of publicity Mr. Gitterman established a demonstration garden in Bryant Park on Forty-second Street. The National War Garden Commission put up the "little garden house" midway between the Y. M. C. A. hut and the Public Library. Here information was given out and a model garden planted by Edward J. Miller, Ph.G., who has studied the soil of Manhattan every time he could find any. That garden is working all winter for it has been put under glass and thousands upon thousands of people have seen the garden and stopped to ask questions as to how they could plant "Food F O B The Kitchen Door."

In his report Mr. Gitterman shows that 1,550 gardens were listed by the Park Department. The value of the produce, complied from reports every supervisor had to turn in is placed at $22,385. The gardens were planted on hillside and along river front, in fact everywhere that soil could be found deep enough to take the seed. Another garden was maintained for demonstration purposes in Union Square be-

Brooms are a dollar apiece. The crop of broom corn at Camp Dix will be worth a thousand brooms. In the photograph, General Hugh L. Scott, Col. G. H. White and Mr. Charles Lathrop Pack, president of the National War Garden Commission

cause there is only one foot of soil above the roof of the Subway.

The big point in Chairman Gitterman's report is the outline of his plans for next year. He is organized to carry on the work and in this look ahead he points to the importance of having four castor bean plants in every war garden to help find castor oil for the airplanes. This plan he has submitted to the aëronautics division of the Army.

* * *

"Get ready," is the note everywhere. Throughout the land the county fairs made special provision for informing the people on war gardening and the canning and drying of their product. One of the biggest campaigns of education as to the importance of food close to the point of consumption has been put on by the Mid-West Horticultural Show at DES MOINES, IOWA, the first week in November. With the poster from the National War Garden Commission called "Win the Next War Now" as a centre piece, the Chamber of Commerce is putting out big placards in every town in Iowa calling attention to the war garden canning and food conservation exhibits to be put on in conjunction with the show. The same sort of campaign was put on through Missouri, Kansas, and Nebraska and other states in the West by W. I. Drummond, chairman of the Board of Governors of the International Farm Congress which was held in Kansas City in October.

* * *

The demonstration garden at CAMP DIX, N. J., where soldiers planted food "close to the mess tent door" has been one of the greatest agencies for impressing the importance of eliminating transportation as far as possible from the food question. The other day a "harvest luncheon" was given. At this luncheon were Gen. Hugh L. Scott and Charles Lathrop Pack, the president of the National War Garden Commission which had given the quartermaster's corps the seeds and implements with which to get started last spring. Of course these two men took great pride in the success of the gardens but even greater interest was shown in the work of Capt. E. V. Champlin and Lieut. John F. Bonnor who had active charge of the "soldiers of the soil." The importance of big camp gardens was at once seen by S. W. Hartley, who was at the luncheon representing Gen. Drake of the Motor Transport Corps, and Capt. R. T. Rasmussen of the same branch of the service. Others who attended the luncheon and the inspection that followed were: W. S. Tyler, food administrator for New Jersey; Col. H. E. Wilkins, depot quartermaster at New York; Col. E. R. Tompkins of the Quartermaster's Department; Col. J. E. McIntosh, subsistence officer, and known as the man who feeds the army; Col. Morris Slayton, quartermaster general's office; Dr. J. H. McNeil, assistant secretary of agriculture for New Jersey; Maj. Chas. R. Van Ettan of the Inspector General's Department; Maj. R. C. Griswold of the Quartermaster General's office. Maj. A. C. Jensen, Camp Dix Quartermaster; Cap. William Bethke, the camp's subsistence officer; Capt. J. E. Lee, Quartermaster General's office. These men are all tremendously interested in food and big plans

Not a hand grenade but a war garden cabbage in Minneapolis. Miss Dorothy Primm reports 35,180 other war gardeners there with crops worth $1,500,000

are afoot for next year's production of it close to the camps. With them it is "get ready" just as it is with the individual gardener for with an army of five million men, and the average cost of feeding a soldier at forty cents a day, it means that *two million dollars' worth* of food must be handled every day for the army alone.

But what the soldier can do, the citizen big and little feels that he can do. For example there is the work of Irene McMahon of the Lowell School at Missoula, Mont., who never canned anything before but her work was so good that Mr. Frank S. Lusk, a banker of Missoula sent samples of the girl's work to the National War Garden Commission. The war garden army in Montana is making plans for next year too just to show that they have something besides copper and sheep out there. Examples of this kind have come to the National War Garden Commission by the thousands. One armed men and men with one leg have battled the bugs just as valiantly as the man in the trenches battles the boche.

* * *

Marion, Indiana, claims the record for war gardening work as a municipality. Lewis de Wolf of the Marion War Garden Association, has turned in figures to the National War Garden Commission which show that Marion had 14,000 war gardens with a population of 27,000. This is one garden to every two people and Mr. de Wolf defies the world to beat it. In thousands of towns and cities campaigns were carried on that produced great crops but the National War Garden Commission has not yet received figures that touch this mark based upon similar population. Of course there are smaller towns, and a lot of them, where "everybody has a garden" as the saying goes. For instance Secretary Mantor of the Commercial Club of St. Cloud, Minn., reports 2,500 gardens in a population of 16,000.

* * *

One of the heartening things about the campaign was the Foreign Inquiries as to war garden work. The home food production idea has spread throughout the world. Under the plans of the Allied Food Controller who held a conference in London, *seventy per cent. of the deficiency in essential foodstuffs of the Allied countries must be supplied from North America.* A statement by the Canada Food Board issued after this conference declares the food situation still demands "that the greatest possible use be made of the produce of war gardens and of vegetables of all kinds." To help meet this demand the war gardener is making bigger plans for 1919.

It is probable that in 1919 intensive war garden campaigns will be conducted in many other countries and an immense amount of food added to the world's production. Canada has made marvelous strides in this work; and Frederick Abraham, honorary chairman of the war garden and vacant lot section of the Canada Food Board, places the amount of home grown food in the Dominion this year at approximately $50,000,000, which is more than double the value in 1917.

"The garden campaign has succeeded beyond the fondest anticipations of those who witnessed and participated in its inauguration in the United States early in 1917," says Charles Lathrop Pack. "The increase this season both in the number of gardens and in the value of the product, has been most inspiring. The consequent conservation movement has swept the country. The knowledge that other nations have started, or are preparing to profit by this new source of food supply, has added to the satisfaction of the workers here.

"Then too, in the opinion of those who are in a position to know, the war garden is a new economic factor, it has come to stay. The United States to-day is confronted with the problem of feeding its 100,000,000 people in addition to supplying part of the needs of its allies and their armies. But when the guns of the war have ceased to sound there will be another 100,000,000 or more of people in the world who will demand food. They will be the neutrals and the other unfortunate nations who have been struggling along on scant, often actual starvation diet, either because of shortage or because the food would have fallen into German hands. It will be years after the war's end before the normal food stock reserve of the world will be restored.

"The war garden must continue to give its widespread, economic, and efficient aid in supplementing the supplies obtained from the farm and other fields. The amateurs of 1917 have become the veteran war gardeners of 1918, and 1919 will see their numbers increased.

"Like the American soldiers in France the people back home would not understand an order to retreat. They will go forward continuing to supply the needs of the men at the front and to those who are with them in the battle for democracy."

The boys at Camp Dix are also successful as farmers and the harvesting has been no small task. 1000 bushels of string beans is just one item

Extra Daylight Helped Gardeners

¶ War Garden records were smashed in 1918 and a great deal of the credit is given to the Daylight Savings Law by the National War Garden Commission.

¶ "War Garden crop values were increased by millions of dollars as a result of the law," said Charles Lathrop Pack, president of the National War Garden Commission whose demonstration garden at Camp Dix produced $25,000 worth of food.

¶ "Figuring 26 working days in each of the seven months," continued Mr. Pack, "you have 182 extra hours in which to work. Our nation-wide survey shows there were five million, two hundred eighty-five thousand home food producing plots. If only one gardener worked this extra hour in each plot it means nine hundred sixty-one million, eight hundred and seventy thousand hours of extra time. Since there are 8,760 hours in a year we find credited to food production work the staggering total 109,803 years of 24 hour days.

¶ "However, there are eight hours in a working day and to get the real figures we multiply by three and find 329,409 working or eight-hour-day years available. Importance of this cannot be over estimated. We are to have an army of five million men and it averages forty cents a day to feed a soldier. In other words two million dollars' worth of food must be handled every day. The big question is transportation for that food. The war gardener who produces close to the kitchen door does a great work and the demonstration garden at Camp Dix teaches a big lesson in feeding the army."

The cliff dwellers of Manhattan Island are successful war gardeners, too. The Park Commissioner helped them utilize all the vacant, flat land. This is not a common conception of 90th Street and Lexington Avenue, that's the spot

Pictorial Lessons in Pruning T. SHEWARD

TREES are pruned to increase the size and appearance of fruit and flowers by removing the surplus branches. In pruning apples, pears, plums, cherries, gooseberries, etc., remove all cross branches that shut out the sun and air, and all dead wood.

THE ORCHARD TREE

Fig. 1 shows an apple tree, one half of which has been pruned, the other half unpruned. The first operation in pruning this is to remove any water sprouts (*W*) that start on the main branches. Cut close to the branches with a pruning knife; or if too large, use a saw (*Fig. 32.*)

When using a saw go over the edges of the cut with a sharp knife (*Fig. 2*) in order to make a clean cut (*Fig. 1, C*) that will heal over readily. *Fig. 1, A* shows the wrong way to cut away a branch, *B* the result. Cut close to the branch and smooth over with a knife and the cut will heal over (*Fig. 1, C*).

The method of removing a large branch is at *D*, making a cut underneath before sawing through from above. *Y* shows how water sprouts will start to grow the following year if not cut close to the branch.

FRUIT OR LEAF SPUR?

Cut out all cross branches (*X*) that shut out the sun and air and are growing inwardly. Remove any fruit spurs that are too far from the light and sun. *Fig. 1, V* on the branch *J* shows a bunch of apples too far from the light to ripen properly, and are best removed. Prune as at *H* and *K*. Fruit spurs are shown at *S*. In *Fig. 21, F S* shows a fruit spur, *L* a leaf spur. *Fig. 22* is the same branch the following summer.

After removing all the cross branches, shorten back all the new wood to about one third its length, keeping in mind the shape of the tree and always cutting to an outside bud, thus causing the branches to grow outwards. *Fig. 1 E* shows the method of doing this.

THE "CLEAN" CUT

A sharp knife (*Fig. 30*) is the best pruning tool because it does not injure the bark and leaves a clean cut, but in pruning tall trees it is not possible to use a knife, so long handled tree pruners (*Fig. 11*) are used. If the blade is filed to a very sharp edge a clean cut can be made.

Fig. 3, A shows a shoot cut too far from the bud. In *Fig. 4* the top bud has grown into a branch the following year. *A* is the same stub, now withered and dead but not covered over. If the cut had been made as shown at *Fig. 5* the bark would have covered the cut (*B* in *Fig. 6*). The wrong way to cut is seen at *Figs. 7* and *8*, *Fig. 9* is the right way.

Pears are pruned much the same way. *Fig. 10* shows a spur of a pear that has grown too long, and the method of cutting back. Remove all dead wood and cross branches. *Fig. 28* shows a small branch with leaf and fruit spurs, and *Fig. 29* the same branch the following summer.

SMALL FRUITS AND BERRIES

In pruning gooseberries and currants remove the old and worn-out wood, train in new branches to replace those cut away and spur back the new wood (*Fig. 20*). *Figs. 18* and *19* show where the fruit forms on the wood of a gooseberry bush. *Fig. 17, A, B, C* shows the method of pruning; the other half unpruned. Cut away the small branches (*X*) and shorten back the new wood to the dotted line.

Since blackberries, raspberries, etc., fruit on the new wood, prune by cutting away the old wood and train in the new. *Fig. 25* shows a good way to grow blackberries. *A* is the wood that will not bear fruit. Therefore cut it away and train in the young wood (*B*). Cut the top to make laterals form (*A*). *Fig. 26* shows a piece of wood with fruit buds and *Fig. 27* the same the following summer bearing fruit.

HOW ABOUT ROSES?

Roses unpruned H. P.,are seen in *Fig. 14* and in *Fig. 15* the same pruned. *Fig. 23* shows a Climbing Rose, *B* a strong young shoot breaking from the bottom of the plant and *A* an old shoot. In training these over arches, etc., the young wood is to be preferred, but if there is not enough to cover the space use old wood, pruning as shown at *C*, *Fig. 23*. *Fig. 24* shows how *C* will flower the following year. *Fig. 31* is *C* enlarged. As a rule Roses are best pruned in spring but old wood of climbers may be taken out now.

ROOT PRUNING

Root pruning is practical when trees grow very strong and vigorous but do not bear fruit. Remove the soil from around the trunk of the tree exposing the roots, cut through the strongest with a wood chisel, making the cut from underneath. Then replace the soil. *Fig. 12* shows the method of cutting the roots and *Fig. 13* how small roots will start from the cut.

Pruning is an occupation for the winter when growth is dormant. This diagram is a clear explanation of how the work can be done on different kinds of plants. The reader must study his own case and apply the method that seems to fit it best. The first thing to be done is to answer for yourself the question, "What am I pruning for?"

THE MONTH'S REMINDER, NOVEMBER, 1918

The purpose of the Reminder is to call to your attention the things which should be thought about or done during the next few weeks. For full details as to how to do the different things suggested, see the current or back issues of THE GARDEN MAGAZINE. *An index of contents is prepared for each completed volume, and is sent gratis on request. Prepare now for next year's war garden.*

Clean Up and Clear Up! M. G. KAINS

While "Putting the House in Order" for the Dull Winter Season, You get Ready for Action in the Early Spring—Forestalling Attacks of Insects and Disease

WHETHER or not your own or your neighbors' gardens suffered from insects and diseases the past season is now of special interest, because *every remnant of such crops* should now be cleaned up, fed to live stock or poultry, buried or burned. Of all these methods of destruction the last is probably the best because it is positive. In the other cases the spores of disease and the eggs and pupae of insects may live merrily through the ordeal and come up smiling next year. Therefore the more complete the destruction of débris the better. In doing such work it is desirable to start in the fence corners and end in the centre, thoroughly combing every part of the place.

If grass and sod have been allowed to develop around trees and among berry bushes, now is the time to remove it. The ground is moist, so the roots of such grass may be more easily pulled loose than when the soil is dry. This work will save similar attention in spring when it will also be more difficult because the grass tops will be shorter, and the roots more active. It will also probably be more successful because many roots accidentally missed will die during the winter, those left in the spring might live and become troublesome. If the grass has developed enough to be called "sod" pull or cut it out to the depth of say three inches—at least below the roots—and place it on the compost pile to decay. Then fill in the bare area with good earth to which may be added bone meal as liberally as one may feel disposed.

Asparagus has ceased to grow, so cut the tops even with the ground and burn them. This is especially important where rust has been prevalent. It is also desirable because it gets rid of the berries which would otherwise fall to the ground and produce little asparagus plants. After cleaning and burning the trash, spray the bed with lime-sulphur wash, copper sulphate solution, or iron sulphate solution to kill the spores of disease. Then apply a heavy dressing of fine stable manure to remain all winter as a mulch and a source of plant food. In the spring work as much as possible into the surface soil with a digging fork—not a spade because that injures the roots.

The grape trellis. Loosen the wires to allow for contraction during the winter. Unless this is done the action of frost in shortening the wires may pull the posts out of position, more or less. Then when summer comes the wires will expand in the warm weather and they will be slack and unsightly. If you do not wish to paint the posts and other wood work of the trellis be sure to spray them with copper sulphate or iron sulphate solution or with winter strength lime-sulphur wash to destroy the spores of plant diseases. This should preferably be done after the vines have been pruned. The pruned vines should also be sprayed at the same time and the prunings burned. Similar remarks apply to Rose supports, arbors, and other structures.

Cabbage and cauliflower. When cleaning up save those plants that have not made heads but that look promising. Plant them in a cold frame and protect the frame by banking with earth or manure. In the spring plant them out. They will give early cabbage, greens or even cauliflower heads long before spring sown plants. Lacking a cold frame, use any rough boards beside the plants where they stand in the garden and cover these as winter approaches with corn stalks.

Make Tools Sharp

SAVE time next spring by sharpening all tools this fall before painting and oiling them. A great convenience for this work is to have a vise in which to clamp each tool while being sharpened. Such vises may be cheaply bought at the hardware stores. A medium sized flat file is the best tool to use in sharpening. Many people who are not mechanics, and even some mechanics, use the file incorrectly. They try to make it cut both ways. As it is not built for such use it quickly wears out. Notice how rough a new file is one way when you try to push the blade through your closed hand, and how relatively smooth the other way when you draw it back. Now, here is the trick; the file is to be used for a push not a pull stroke. Therefore, when drawing it back for a fresh stroke never press upon it—either raise it clear of the metal or let it barely touch.

Give the tools a last overhauling. If a tooth or attachment of the wheel hoe has been broken either get the local blacksmith to repair it or buy a new one. See that every bolt, nut and washer is in good enough condition to last the whole of next season. Thoroughly clean every part of the machine, paint all parts that the manufacturer painted and oil all other parts. Painting and oiling are all the more important when the tools must be stored in damp quarters where they will easily become rusty. A rusty tool is not only unsightly; it is harder to use and shorter lived than one kept bright.

Value of Paint

NEVER leave any metal in the garden over winter unless it cannot be removed and housed. If it cannot be taken under cover, be sure to paint it. Any kind of metal paint will do but preferably it should be of some color that will not "swear" at its surroundings—something "quiet" always! Of course, there is no need of painting galvanized or other zinc materials. These are little affected by the weather except near the seashore where the air contains salt. They are shorter lived under such conditions. Fences, gates, and similar accessories, must now be put in shape for the winter. Such of them as need painting may be treated after the flies, plant lice, and other insects have disappeared.

Overhaul the tomato racks, and make new ones to replace those past their usefulness. If the wood from which these new ones are made is first cut the proper size and then painted by dipping as suggested in another paragraph, the racks will be more expeditiously made and will last longer than if constructed first and painted after, because the cracks between the parts will have been painted also. In these days of high cost of lumber, painting will considerably lengthen the "life" of the wood used.

Overhaul hotbeds, coldframes, sashes, mats, shutters, and everything else connected with the forcing of early plants. See that every broken light in the sashes is replaced with a sound one; also be sure that the putty is in good condition to last through the whole season. Then paint the frames with first grade white lead in pure linseed oil. Also paint the other woodwork. Be sure to avoid every coal tar product in such painting because it is dangerous to use wherever plants are to be grown. If the hotbed is heated by hot water or steam pipes give these pipes a painting with black asphaltum to prevent rust. Before the beds are to be used, however, turn the heat on to allow the fumes of this material to escape. Then paint the pipes with a mixture of flowers of sulphur and water. The sulphur slowly vaporizes when the pipes are warm and serves as a disease preventer.

Every stake, pole and label that has served its usefulness should be burned; first because of its decrepitude, second because it is a harbor for spores of disease. Some of the larger ones may be worth using as kindling; the others may go on the general rubbish pile. Stakes worth saving for another year should be cleaned and disinfected with formaldehyde. This sounds like a serious matter. It isn't if one has a tub or a trough big enough to immerse them in. A mixture of 100 parts by measure of water to one of formaldehyde will be strong enough.

After the stakes and labels have been cleaned and disinfected they may be painted. Here, too, is an easy but big sounding job. No brush is needed but either a narrow and deep, tin tube with a closed bottom, or a shallow, long and narrow pan or trough. By holding each stake or label by its end it may be lowered vertically into the former and if too long to be all immersed, it may be reversed and dipped a second time, thus painting the other end. Then wipe off with a rag.

Be Forehanded with Bugs and Diseases

TO DESTROY countless wire worms, white grubs and other insects that pass the winter in sod, plow deeply during November. This will disturb those insects that form "cells," prevent their making new ones and thus destroy them. It will also bury the others so deeply that many of them will never reach the surface. Of course, plowing cannot be done on lawns. It is feasible only where the sod area is to be planted to vegetables and other crops next spring.

If the *peach trees* have not already been "wormed" do the work without further delay. The borer is the arch foe of the peach. It does most of its damage just below ground on the trunks and sometimes on the main branch roots, usually within 6 inches of the surface, and occasionally one may be found above ground. To find it scrape away the earth in an inverted, cone-like trench around the trunk and whenever a mucilaginous or gummy mass is found, look sharply for the whitish grub that causes this mess. Cut the bark with a knife if necessary to find him. Often there may be half a dozen, so don't be satisfied with finding only one. Kill all. Leave the little trench open for a couple of weeks and then make a second examination to be sure that all have been found. After this, replace and tramp the earth around the trees and even raise it in a mound three to six inches high.

Beneath the plum tree, and near by, clean up all rubbish and let the hens forage there to hunt up and eat the curculios that make wormy plums. The fewer allowed to hibernate the better and the larger the number of plums next year.

If you noticed little wart-like swellings on *pear leaves* last summer, it will be advisable to rake up and burn the pear foliage because this will destroy large numbers of the blister mite that causes such swellings. Spraying the trees with winter strength lime-sulphur this month will also help. This spray will serve against San José scale as well.

Under no circumstances, allow the stumps of cabbage, cauliflower, Brussels sprouts and related plants to remain in the garden over winter. They serve as breeding quarters and winter homes for countless cabbage aphis which in the spring will damage the new crop. Be sure to burn them now.

It's a good plan to examine the *trunks of apple and pear trees* to see if any codling moth pupae are hidden beneath the loose bark. If the trees have borne any fruit this season there are probably at least some. To do more effectual and more economical work, spread sheets, burlap, duck or other material beneath the trees and around the trunks, then scrape off the loose bark. Catch the scrapings and burn them. They probably contain not only codling moth pupae but the eggs and cocoons of many other kinds of insects that would be troublesome next season. Don't be satisfied merely to scrape them off. They should be burned.

Leaf curl of peach next spring may be largely, if not wholly, prevented by thorough spraying this month with winter or "dormant" strength lime-sulphur wash. Apply it to every twig and bud for it is on these that the fungus passes the winter. This same spraying will also destroy the San José scale that may be on the trees.

Mummy fruits of peaches, plums, cherries, apricots, nectarines—collect and burn; or if there are too many to gather from the trees and the ground, knock down all within reach and plow them all under as deeply as possible without injuring the tree roots. These mummies carry the spores of the rot disease over winter and spread infection among the foliage and fruit of the following year. After gathering or plowing, it is a good plan to spray the trees and the ground with copper sulphate solution, iron sulphate, or winter strength lime-sulphur wash to kill all spores that may have been missed. This must not be done until the foliage has fallen and the trees are ready for winter, otherwise it might do damage.

Points on Pruning

IF THE old dead canes of *raspberry, blackberry* and *dewberry* have not already been cut out and destroyed, and if the *currant* and *gooseberry* bushes were not pruned as they should be in August after having fruited three or at most four years, do this work now. The best way to destroy them is by fire because this gets rid of boring insects that may be in them. Diseases are also destroyed in this way.

Look at the Grape Vines

NOW is as good a time as any to prune grape vines. In fact, for such kinds as the Scuppernong and other Muscadines it is far better than toward spring, because the wounds have a chance to dry and thus prevent "bleeding" which always occurs when the pruning is done late. In pruning it is safe to be very severe. First, remove all the puny growths. Next shorten the sturdy ones to two or three joints, each with a plump bud. If the vines are young —two or three years—allow only ten to twenty such buds and be prepared to reduce the number of shoots that will start from these next spring. Mature vines may be allowed to have 30 to 50 or even more buds. As much as possible keep these buds near the main trunk of the vine, thereby concentrating both the plant food and area of production. If grapes are tender in your section, lay the vines down on the ground and cover them with corn stalks, brush, or other material that will protect them from the sudden changes of weather. Semi-hardy and even tender kinds may be grown successfully in this way. Burn the prunings.

Don't Over-prune!

THOUGH it is now time to prune fruit trees go slowly! It is so easy to overdo the thing. Cut off *only the worst offending branches* when pruning young trees—those branches that now interfere with the others or will surely also do so later. Dead wood, of course, must come out. Be sure to allow every little stubby twig to remain on apple, pear, plum, cherry and apricot trees because these are the ones that bear fruit. By removing them and by using the tools too freely you may actually prevent the trees from bearing fruit. Avoid doing any pruning of peach and nectarine until the latter part of March because the winter is often severe upon the buds. It is safer to wait until the blossom buds begin to swell before pruning these trees.

When *large branches* must be removed be careful to prevent tearing of the trunks when they fall. To avoid this make a cut from the lower side a foot or more out on the branch. When the saw sticks, pull it out and cut from the upper side until the branch drops. Then cut off the stub as close to the main trunk as possible so as to favor healing. Never leave a stub or even a shoulder.

To Paint Wounds, or Not?

IT IS *not necessary* to paint pruning wounds smaller than two inches in diameter. They usually heal in a year or two during which time decay seldom has a chance to enter. Larger wounds should be "dressed." Paint is only a makeshift, often it may accumulate year after year as fresh coats are applied until it is a quarter of an inch thick or even thicker yet be no protection at all! Decay may gain entrance through checks or cracks in it. The best preventive of decay, creosote, is dangerous to use because if allowed to touch living wood it does damage more or less severe. Yet it may be used with entire success provided it be not allowed to come within half an inch of the light colored wood just beneath the bark. The brush must be pressed against the pail so no "running" may occur and when applied to the wound only the heart wood must be touched. A painting each year with creosote will *positively prevent the entrance of decay* and if the growing tissues of the wood are not injured the edges of the wound will gradually grow together and completely cover the whole area. Furthermore, wood soaked annually in this way will not decay later, as often is the case when ordinary paint is used.

Manure is Worthy of Care

NOT ONLY is it untidy to throw stable manure out-of-doors but it is exceedingly wasteful. Rain, snow, and air each make their inroads upon the plant food in the manure which is daily rendered less valuable. Always store manure under cover and keep it moist, or it will "fire-fang"; that is, "burn," and become less valuable. A temporary shed is all that is necessary. Some people haul the manure and spread it on the garden or the field as soon as made. This is good provided the ground is not frozen and is plowed before winter sets in, otherwise, much of the soluble parts may be *washed over* instead of *into* the soil. As to poultry manure keep it dry. Mix it with dry earth, daily, as made and cleaned from the dropping boards.

Mulch for Winter Protection

MULCHING to protect plants during the winter may begin this month. Such garden trash as is not objectionable from its insect or disease bearing nature or because of weed seeds may be used for this purpose—corn stalks, straw, litter, weeds cut before seed ripening, etc. Protect the Roses and other shrubs with three or four inches of strawy manure (see article in last month's GARDEN MAGAZINE); around and over the hardy perennials and Dutch bulbs also spread a liberal covering. *When the ground has frozen* hard enough to bear a wagon and a horse spread four to six inches of marsh or salt hay, clean straw, buckwheat stems or other material free from dry ground weed seeds. If materials such as mentioned are expensive or inconvenient to get merely lay brush rather liberally upon the beds. It will collect and hold leaves whenever the wind blows and these will form a fair mulch, though not as good a one as marsh or salt hay and buckwheat stems. The former two of these materials may contain weed seeds but the plants that spring from them cannot grow in ground as dry as the garden because they are water loving plants. The buckwheat stems seldom contain weed seed because buckwheat grows so fast it chokes weeds and what ones do live seldom mature seeds.

A Wrinkle in Flower Pot Cleaning

CLEANING flower pots is in order now. It is a slow, tiresome, hard job if done by "main strength and stupidity" but comparatively easy when done as described here. The advisability of doing it is to get rid of the "moss" on the outside as well as the soil that sticks inside. This "moss" or growth of algae closes the pores in the pottery and thus tends to make the water and the soil stagnant, sour and poorly aërated. No matter how stiff the brush it is difficult to remove under ordinary conditions. But! Nest the pots according to their size and lay them in a trough or a tub, then cover them with water to which about ten per cent. of sulphuric acid has been added. This will not only destroy the "moss" but will dissolve the salts of fertilizers which have clogged the pores in the pottery beneath the moss. After soaking thus for say twenty-four hours use a stiff brush with plenty of water and the pots will be cleaned with only a small fraction of the former effort and in far less time.

Protect Young Trees Against Rabbits and Mice

WHERE rabbits are troublesome or plentiful, protect your trees from their attacks this winter by wrapping the trunks with galvanized hardware cloth or wire netting—half inch mesh—to a height of not less than 18 inches. This will also protect the trees against mice provided the wire extends into the ground a couple of inches or is mounded up with earth at least that much. In order to aid in prevention of such damage be sure to clear away all straw, grass, and other material that might serve for mouse nests. It is also a good plan, particularly where no protector is applied to the trunk, to make a mound of earth about six inches high around each tree trunk. Such earth should be tramped down firmly to help keep it in place when fall rains and winter snows come. In the spring the mounds should be levelled.

Summarize the Season's Work

AS a special feature of the clean-up season make a careful review of the entire season's work, noting every possible detail especially of failure and the cause. This is fully as important as recording successes and what they depended upon. In connection with this review a personal expereince table showing the length of time required by the various seeds to germinate, the time between germination and thinning, and also maturity, the relative proportion or percentage of seed that germinated that gave plants true to type, reasons for discrepancies between such records and those accepted by "experts" as normal, data as to varieties to discard and what ones have pleased the neighbors or other gardeners who have written for THE GARDEN MAGAZINE or other periodicals—all such time spent and data gathered will be of special help in planning the garden for next season, particularly if it is written down where it may be easily referred to in after months or after years. It is also a good thing to summarize the expenditures and the income from the garden so as to know whether it pays in dollars and cents, as well as in pleasure.

The Garden Movies, No. 11

A picture reminder of some of the timely work as the season closes. Much benefit next spring can be derived from proper attention now

Photographs and Explanations by
W. C. McCOLLOM

MULCHING THE CANE FRUITS. Unsatisfactory growth can oftimes be traced to the winter killing of the roots, while not destroying the plants entirely. Mulching with manure is the best preventative. It also keeps the soil in a high state of fertility; as the food material is washed into the soil

LIMING THE GARDEN. It corrects the soil acids, breaks down the masses of earth, releases the natural food content of the soil and acts as a mild fertilizer. Apply lime every second or third year to cultivated land and always to new ground before cultivating. Lime is inexpensive. Use at the rate of 100 pounds to 1,000 square feet of area

PROTECTING STORAGE TRENCHES. Protect vegetables according to the weather conditions. During severe freezing weather don't hesitate to add corn stalks, leaves, or litter as it is easily removed if conditions warrant it. Place tar paper over the trenches to prevent the penetration of rain into the protecting material. When such does occur the trenches must be opened and the protecting material dried.

KEEPING WHAT YOU HAVE. Do not neglect valuable garden crops at harvesting time. Husk the corn stalks and store the potatoes in a dry frostproof cellar. Vegetables that have been previously stored should be looked over occasionally

TRENCHING THE GROUND. Trench the garden in late fall, thus destroying myriads of insects, trapping them before they can get below the frost, admitting air beneficial to the lower soils and adding depth to the mass of loose earth. Dig the trenches from two to three feet deep and as close together as possible, alternating the direction of the trenches each year. Trenching is practised annually in the productive gardens of England

CLEANING UP THE GARDEN. Clean the garden thoroughly in the fall as insect and garden pests of all kinds hibernate beneath piles of decayed vegetation. Rake all corners, burn rubbish and tops of vegetables of no value and dig in vegetable tops that are still green for their fertilizing value

COVERING THE PLANTS FOR WINTER. Cover strawberries, late sowings of onions, turnips, spinach and all plants that are left in the garden over winter with light material such as salt hay, leaves, litter, or even cornstalks. It is advisable to occasionally loosen up the covering as it matts down and loses its protecting value

PROTECTING THE STRAWBERRIES. Too early covering of the strawberry plants causes winter killing, the reason being that nature has not had an opportunity to properly ripen the growth. Wait until a crust is formed on the ground by the frost. Use well rotted manure, being careful not to bury the crowns or they will decay. The winter mulch is also a supply of ready food in spring

UNCLE SAM'S GARDENING

A News Feature of National Current Activities

EVIDENTLY community gardening has come to stay. In almost every section where it has been tried it has proved successful, and has been the means of many an "unskilled, unpractis'd" man or woman attaining to a creditable production in thrifty, well-grown vegetables—an achievement which otherwise would have been wholly beyond them. Best of all, these new recruits have ended the season with a feeling of encouragement and of high enthusiasm for another venture next year.

* * *

THE University of Nebraska made a fine contribution to the cause of democracy in its improved drier. This was an enclosed cabinet, screened at the end, and provided with many trays, and so arranged that an electric fan swept over them a constant current of air; it was effective, quick, clean—but also expensive. The matter, however was taken up by the Lincoln Rotary Club, which provided the funds and organized the establishment of one of the first—if not the first, community driers in the country. Any housewife could take her product, properly pared and sliced to the drier, call for it when done, and for the service pay a few cents per bushel.

* * *

MAYOR DAHLMAN of Omaha, observing the advantages of the community drier, urged it on Omaha and one was established under the direction of the Omaha Welfare Board. People from all around brought their garden stuff to be dried, more than twenty varieties of vegetables were handled, volunteers ran the plant, and the public was charged the cost of operating—twelve cents for each bushel dried. Drying vegetables in Omaha was made so cheap and easy that everything was gathered and conserved. I doubt if garden clubs can perform a single service more of benefit to the community than the establishment of a community drier and running it for the public at a nominal cost. In the individual effort there is a chance of failure.

* * *

INTERESTING experiments in community markets to take care of the surplus products have been an interesting by-product of this year's gardening enthusiasm. These, in most cases have been organized and operated by women. Markets have been established in all sorts and conditions of places—city curbs, Court Houses, in old school houses, in back yards—in short in any convenient place where consumer and producer could get together.

* * *

THE county officials of Wilmington, N. C., started a community market in the Bethany County Court House. Lancaster, Pa., has a market twice a week along the curb of a street in the heart of the city. In Brookline, Mass., a community market was organized in the old Bethany Sunday School building. These and other small markets were extremely well patronized. Salt Lake City early established a municipal market where all growers might bring their produce, and the Women's Committee on Food Conservation supplemented this with a cannery, which is operated in the market building. Mrs. W. F. Adams, President of the Federated Women's Clubs of the city directed the work, and six other women made themselves responsible for furnishing ten helpers one day a week. Equipment was installed sufficient to can a goodly amount of produce a day and the work has gone merrily on. Many women came as volunteers, market produce was bought. Boy Scouts brought in produce which was given. Canning demonstrations were held and women who came for the products learned how to do the thing themselves.

* * *

UNDER the chairmanship of Mrs. Eloise Vimont the women of St. Louis conducted a municipal cannery, impelled by the necessity of preventing the waste by the commission houses. Surplus products, instead of being thrown away were purchased at a low figure daily and canned in a large building lent for the purpose. This is typical of what has happened in a great many cities: women are very much in earnest in the matter of stopping the waste by commission houses. Possibly another year will find the whole business of the middleman in women's hands and the men who manipulate prices in potatoes and onions will be better employed in growing them.

* * *

THE Woman's Land Army made good this summer to an astonishing extent. It was hard to go anywhere that the "farmerette" in her attractive costume was not an important figure on the landscape—not only that, but she has won the respect of the community. Even in those most conservative of communities, the New England hill towns the farmerette has in many cases come to the rescue of the crops and done admirable work not only at the lighter parts of farming—weeding, berry-picking and the like, but the units have gotten in hay, brought in oats and done creditably other man-size jobs, and without their aid, with the extreme scarcity of labor and the depletion of the countryside of its young men, many a crop would have been lost.

* * *

A VERY valuable side-crop due to the farmerettes' activity, is the enthusiasm for the work among the country girls themselves. Many young women, farmers' daughters, who previous to this summer have sought summer employment at the great summer resorts, have gone into farm work and found a genuine liking for it and immense increase in health. Perhaps the Land Army will have the credit of breaking down the ancient New England tradition that field work is improper for women and that the woman's "sphere" should keep her glued to the house and the cook-stove. If so it will have done an immense work and be a tremendous influence for health among New England girls. Country girls who never thought of doing such a thing before have camped and worked in the fields—and liked it. Small units are planning bigger things for next year—as the unit at Cornish, N. H., in charge of Miss Jameson, recruited almost wholly of the young girls of the neighborhood, that unit is expecting to raise $1,000 for next year's equipment, for the purchase of tools and machinery which they propose to own.

* * *

THE central office of the Woman's Land Army of America reports that wherever its units have been established, success has been the invariable record. Thirty-nine states are now organized under the Woman's Land Army of America. Of these seventeen have placed active units in operation, while others are canvassing the farm labor situation and strengthening their organization so that they may be ready to meet the demand another season.

* * *

AS MANY as one hundred and twenty-seven units of women have been at work—these units ranging in size from twenty to a hundred and forty women. And a conservative estimate of the women serving on the land this year is about 15,000. This does not include emergency units organized by the various cities and towns, or women working in their own locality and not joining an agricultural unit—if these were added the total would greatly exceed the figure given.

* * *

WOMEN everywhere have shown a remarkable eagerness to enter the Land Army and recruits have been drawn from every profession and all occupations. So far the Land Army has not disturbed to any extent existing industrial conditions—the Hired Man is quite willing, nay even pleased to have the feminine help. Naturally the workers have been drawn from those whose summer time is free—teachers, college girls, seasonal workers, and the like.

* * *

SKEPTICISM and conservatism exists where the Land Army has not come. Usually—in fact almost invariably, a unit on the scene and getting to work, has been able to convince the most conservative farmers of its value. Once they have seen how it works, they want more of the same kind. The women have worked, and worked successfully at the following tasks—haying, hoeing corn, binding grain, shocking wheat, rye, and oats, stocking grain, bagging corn, cultivating, plowing, planting, thinning and weeding, fruit-picking and drying, potato digging, canning, berry-picking, pruning and tending vines, bunching vegetables, staking tomatoes, transplanting, feeding stock, dairying, harnessing and driving horses, running tractor, operating binder, chopping and sawing wood, and irrigating—a fairly complete farmer's repertoire!

Apparently the work has been good for the worker. One large camp reports an average gain per worker of nine pounds, and in every case the physical condition of women in Land Army Camps has been pronounced to be excellent.

Government departments and 32 organizations (patriotic groups and organizations of women) have this summer coöperated with the work of the Woman's Land Army. Thirty-four women's colleges have helped either by recruiting or by offering agricultural courses. There is an especial need of dairy workers.

* * *

WOMEN who have farmed in amateurish fashion this year and intend to go a-gardening next year on a larger scale and with better methods, will be greatly interested in the courses offered at the School of Horticulture for Women at Ambler, Pa., under the direction of Miss Elizabeth Leighton Lee. During the spring and summer session this excellent school was crowded to its fullest capacity, for not only theory is offered but practical work under very able teachers.

* * *

VERY popular were the "War Courses" for Captains and Lieutenants of Land Army Units and the graduates have been in great demand. The School coöperated with the Drexel Institute in Philadelphia, gave a course at the Institute and a practical course of work at the Drexel Estate, on the edge of the city. The School of Horticulture has organized a Bee Club on a coöperative basis and is making a very definite contribution to solving the problems caused by the sugar shortage by reviving the industry of bee-culture and by producing very excellent honey, for which there is a tremendous demand. The jam kitchen gives instruction in the latest methods of preserving and canning and puts up large quantities of fruits and vegetables. The Directors of the school at Ambler, and especially its president, Miss Jane B. Haines deserve great credit for having had the vision and the faith in horticulture and agriculture as professions for women, and making training in these practical and possible before the country as a whole had waked up to their necessity.

* * *

COÖPERATION in canning is proving very successful. In Philadelphia, the women living along York Road, and on the Main Line have gotten together, engaged an expert, and do their canning under supervision. Reporting that it is more fun, insures better results, and saves the ordeal of canning to their own immaculate Philadelphia kitchens—also undoubtedly to their families.

FRANCES DUNCAN.

"Gassed?" No! Not If You Help.—The appeal of the Gas Defense Division for the conservation of fruit pits and nut shells is possibly one of the most important that has been presented since this country entered the war. Every soldier, every nurse, every Red Cross worker, every Y. M. C. A. and Knights of Columbus field secretary and the representative of every other organization in France must be equipped with a good mask before entering the field. Gas warfare must be combatted. The horror which the word "gassed" brings to the men in the trenches demands your coöperation in this work. The Government asks you to save materials you are now throwing away. Carbon from fruit pits is the best possible gas filter, and in the next few months people will be using canned fruits, olive nuts, etc., which will supply (if saved) huge quantities of carbon. Therefore save all

Peach Stones	Apricot Pits
Prune Pits	Plum Pits
Olive Pits	Date Seeds
Cherry Pits	Butter-nut Shells
Brazil Nut Shells	Walnut Shells

Hickory-nut Shells

Potato Bugs and Airplanes.—Who would have imagined that the manufacture of airplanes, would have any bearing on the potato bug, for instance? Yet the supply of paris green for the crops was seriously threatened because the manufacture of that bug poison necessitated the use of acetic acid. But that was also essential to the waterproofing of the airplane wings! The Food Administration solved the problem by arranging for vinegar production on a large scale by yeast manufacturers. Vinegar which contains about 10 per cent. acetic acid now goes to the production of paris green. The increased use of lead arsenate is urged instead however—this is cheaper and quite as effective.

"Greenside" of Tomatoes.—Uneven ripening of the fruit, leaving green, hard areas on one side or about the stalk is ascribed to deficiencies of potash in the soil. English observers report moreover that some varieties are more susceptible than others. It would be interesting to learn about the behavior of our American varieties. Any reports from the neighbors?

Comparison of Tomatoes.—I have amused myself and perhaps gained a little knowledge in making a careful comparison of the behavior of a few varieties of tomatoes which are followed through from the seed. There were eight varieties under observation and their appearance and qualifications in my garden last year are as follows: (1) *Dumbleton Favorite*, fine growth, very early, in fact the earliest tomato I have, extremely prolific, ripens even, no rot, thick skin and fruit meaty, a small tomato, clusters of 6 and 7. (2) *John Baer*, fine growth, large fruit, good shape nearly 3 weeks later than Dumbleton, skin good, and fruit solid clusters of 3 to 5. (3) *Britain's First and Best*, very prolific, fruit good size a week later than Dumbleton Favorite clusters of 5 to 12, sometimes ripens a little soft, good for canning but not so good for slicing, thin skin. (4) *Bonnie Best*, about the same as John Baer, to which variety I prefer it. (5) *Stamford Beauty*, evidently some relation to Bonnie Best, a fine large fruit ripens, 3 to 4 weeks after Dumbleton. (6) *Everlasting*, rank grower, large uneven fruit, pink variety, personally I do not care enough for it to grow it again. (7) *Buckbee's Banquet*, very ordinary, small size, weak grower, would not recommend it. (8) *Lemon Queen* (Yellow), fine growth, large, meaty, ripens up without cracking, very solid, recommend this as the best yellow I have ever grown.—*Sam Danks, New Jersey.*

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Caledonia, orange-scarlet, for bedding	2.00
Gesneriana, finest red	2.00
Mixed Darwins, dream colors	2.00
Wedding Veil, gray, flushed blue	2.40
Kate Greenaway, blush white	2.40
Clara Butt, richest pink	2.40
Light Purple, tall and fine	2.80
Sir Harry Veitch, rich dark red	2.80
White Queen, stately and dainty	3.00
Baronne de la Tonnaye, late pink	3.00
Farncombe Sanders, best red	3.60
Rev. Ewbank, beautiful heliotrope	3.60
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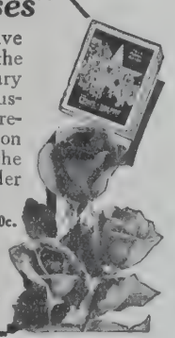

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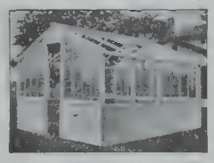

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"KEEP THE HOME FIRES BURNING" in their hearts as well as on our hearths. Don't let them forget that over here a hundred million loyal backers are with them heart and soul. Don't let them feel they are forgotten; strengthen the bonds between them and their home country.

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These things are more than comforts—they are *necessities* to men engaged in exhausting and nerve-racking warfare. They keep hearts strong and courage high. And by giving them these simple pleasures and lesser essentials, you show your gratitude for those who are giving their lives. Open your heart and purse freely and pay, in so far as you can, your debt to them.

YMCA

Seven allied activities, all endorsed by the Government, are combined in the United War Campaign, with the budgets distributed as follows: Y. M. C. A., $100,000,000; *Y. W. C. A.,* $15,000,000; *National Catholic War Council (including the work of the Knights of Columbus and special war activities for women),* $30,000,000; *Jewish Welfare Board,* $3,500,000; *American Library Association,* $3,500,000; *War Camp Community Service,* $15,000,000; *Salvation Army,* $3,500,000.

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THE PUBLISHERS OF GARDEN MAGAZINE

Winter Quarters for the Tender Plants

IN THE case of owners of collections of Palms and other decorative plants the ruling of the Fuel Administration allowing 50 per cent of their yearly consumption (based on an average of the past three years), is certain to work some hardships. But the case is by no means hopeless, and with close application it will be easy not only to save these plants but to have them in tip top condition in the spring.

In the past it was customary to keep these plants at all times in a growing temperature. This of course meant that the greenhouses must be heated during September and October. This year we have already saved the coal that we would have burned during that period. We will not make any effort to *grow* the plants during the winter season, as absolute rest, at a much lower temperature, will assure the safe wintering of this class of plants.

Until such time as continuous freezing weather prevails, wood fires could be started in the late afternoon. If the body of water is thus properly heated and the greenhouse closed tightly it will retain sufficient heat until the sun strikes the house in the morning. During this period the ventilators will be closed before the sun goes down, trapping much of the sun heat. The plants must be kept comparatively dry at night. If properly hardened, they can stand considerable hardships. Too much spraying, especially in the evening, or overwatering at the roots will cause the foliage to turn yellow.

Consider a house of Palms and other exotic plants of similar character that are usually grown at a night temperature of from 65 to 70 degrees. In these conditions the plants grow rapidly and they are consequently "soft"; this means they must be spaced sufficiently to avoid crowding, and so the greenhouse is only filled to about two thirds its capacity because of the danger of the plants being injured by contact. Plants that are properly "hardened" and that are being wintered at a temperature of 50 degrees can be stored very close without danger. Doubling up the contents of house or compartment will permit the use of proportionately more coal where the exacting plants are being grown, such as Orchids. In order to save the more valuable plants that have taken years to grow it may be possible for neighbors to pool their interests by wintering the valuable plants in one greenhouse.

WATERING IN WINTER

Plants that are resting should be kept comparatively dry. When they are not growing briskly they cannot utilize the moisture normal in a high temperature. Excess of moisture causes mildew, or the foliage turns yellow. The little spraying to be done should be attended to in the morning *on a rising temperature;* under no circumstances should the foliage ever be wet at night. Wet plants and a low temperature mean certain destruction.

Any more water in the soil than the plant can utilize is detrimental to the health of the plant. When growing vigorously, there is little danger of overwatering. Soil that remains wet for any time becomes sour and is harmful to plants. Overwatering the plants when resting causes the roots to decay, a condition which is not perceptible to the eye until it is too late to correct it.

Nor is it safe to feed plants in a low temperature for the root action is lowered. Well nourished roots with an unfavorable atmosphere will not produce a healthy growth, nor will a favorable atmosphere and an impoverished soil. A poor soil is preferred for plants that are being wintered at a low temperature but don't repot the plants now into poor soil. The proper time to repot is *after the resting period*, when they are starting into growth.

Just because this land of ours has been a land of plenty, we have been wasteful, and neglectful in small attentions that total heavily. How many owners of greenhouses, for example, have ever had their heating system looked over to ascertain its efficiency? How many have resorted to the screening of the ashes? How many *know* whether the fires are *properly* banked during the day? By cutting close on all the corners and applying a little thought to our problems we will be able to save most of the valuable plants which may be lost if we simply become panic stricken. Closing the vents while the sun is still on the house so that as much as possible of the natural sun heat may be saved; having the chimney really cleaned; and the furnace cleaned daily, are but plain common sense applications. The curtailment of fuel does not necessarily spell disaster. Quite the contrary, indeed.

Why Electric Heat Will Fail.—If I could have but one, THE GARDEN MAGAZINE would be my choice. Of course I find some articles more interesting than others, but I read all the text and most of the advertisements and find it all profitable. I do, however, hope THE GARDEN MAGAZINE will not treat us to many articles like that of last November on Electrical Heating of Hotframes. The writer opened with the statement that he had never tried it, and then proceeded to demonstrate the practicability of electricity for that purpose. It is not practicable. The expense is prohibitive, not for installation or current, but for repairs. In the present state of the art, none but the fabulously rich can use electricity for heat. The heating units and switches are continually going out of commission, are difficult to repair, and entire new units and switches are frequently necessary.—*Arthur McCausland.*

—Our correspondent is probably quite correct—we are not converted to the idea of electric heat ourselves, but the article was written as a presentation of the possibilities because several readers had actually raised the question—and we tried to satisfy their search for knowledge by telling how it *could* be done.—*Ed.*

The Rose Bug.—Will you kindly advise me is there any precaution I can take with preparation of the ground this fall against the ravages of the rose chafer or rose bug? I have bought an old place that has not had attention for several years. With it some fine old grape vines that once bore more than thirty bushels from one vine. In June the vines were set as thick as leaves with buds, and after an invasion of rose bugs only one bunch that hung under a chipping sparrow's nest was left to develop. Hand picking was out of the question. Everything was completely covered. They also attacked the new hardy Hydrangea hedge, Deutzias and a few old fashioned Roses. Color seems to make no difference.

As they go into the ground it seems as if something could be done to saturate it. I am anxious to put in a fine Rose garden but dare not try it until this pest is under control. I sprayed with bordeaux and heavily with arsenate of lead and kerosene emulsion but it seemed of no avail.—*O. U. Swift, Bennington, N. H.*

—The rose bug bores into the ground during the winter. Would spraying the ground with bisulphide of carbon, which being heavier than air will penetrate the ground, be effective? It is of course useless to attack insects with a fungicide, like bordeaux.—*Ed.*

Dreer's "Matchless Dozen" Hardy Perennial Phlox

Twelve distinct varieties selected from a collection of over one hundred sorts, some of them new varieties and colors of recent introduction, others the cream of the best older sorts. An assortment of twelve varieties that is not possible to surpass. You can plant Phlox at any time so long as the ground is not actually frozen.

Elizabeth Campbell. Bright salmon-pink with lighter shadings and dark crimson eye.
Europa. Vigorous white with decided crimson-carmine eye.
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Mrs. Jenkins. The best all round pure white.
Riverton Jewel. Beautiful shade of mauve-rose, illuminated by a brilliant carmine-red eye.
R. P. Struthers. Bright rosy-carmine, with claret-red eye.
Rynstrom. Beautiful carmine-rose.
Thor. Beautiful salmon-pink, overlaid with a deep scarlet glow, large white halo and aniline-red eye.
Von Lassburg. Purest white with exceptional large flowers.
Viking. One of the latest to flower, a pleasing soft salmon-rose.
W. C. Egan. One of the largest flowering sorts, a pleasing shade of soft pink.
Widar. Bright reddish violet with large white centre.

25 cts. each; $2.50 per dozen; $15.00 per 100.
The set of 12 varieties for $2.50 postpaid.

Our Fall Catalogue also gives a complete list of seasonable Seeds, Plants and Bulbs for outdoors, window garden and conservatory.

A copy mailed free to anyone mentioning this magazine.

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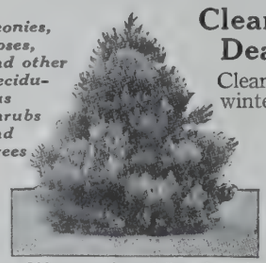
Peonies, Roses, and other Deciduous Shrubs and Trees



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Pay us a visit, phone or write. Booklet on request.

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Safe arrival by rail and satisfactory growth guaranteed.

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Heatherhome Bulbs

For Fall Planting

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Write for our Fall List to-day

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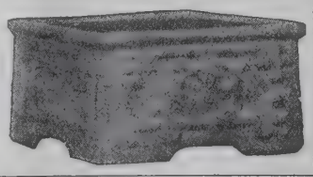

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AMERICAN BEE JOURNAL, Box O, Hamilton, Ill.

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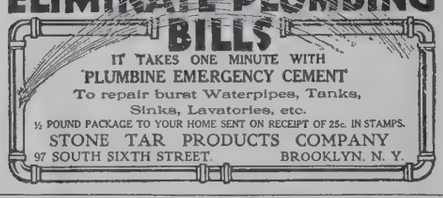

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PLUMBINE EMERGENCY CEMENT
To repair burst Waterpipes, Tanks, Sinks, Lavatories, etc.
½ POUND PACKAGE TO YOUR HOME SENT ON RECEIPT OF 25c. IN STAMPS.
STONE TAR PRODUCTS COMPANY
97 SOUTH SIXTH STREET. BROOKLYN. N. Y.

Your Library must contain a complete Kipling—that is, if you plan to afford your children the heritage of the Anglo-Saxon family.

Published by
Doubleday, Page & Co., Garden City, N.Y.

Salmagundi

SEVERAL items of information have come to me in the last year which I hope to pass along, with THE GARDEN MAGAZINE acting as intermediary.

As vegetables have the right of way, corn shall be the first number on the programme. The roasting ears have a vicious enemy in a yellow moth which lays its eggs in the corn silk, these hatching into an unpleasant green worm with the appetite of a growing boy. Nothing is more aggravating than to strip the luscious Golden Bantam and find the corn worm has "beaten you to it." Having suffered greatly from these larvae, I wrote to the Ohio Agricultural Experiment Station at Wooster, last spring, for help. The answer came back that dusting the corn silk every three to five days, from the first appearance of the silk, with powdered arsenate of lead, might be tried. I applied this remedy with a bellows and found it quite successful. It did not eradicate the pest entirely but reduced its ravages to a minimum.

A second suggestion was also made, to inclose each ear in a paper bag after the pollen was set. As I live on the edge of a golf course and am a sensitive soul, I shrank from the ridicule entailed by such a proceeding.

The early limas are often victims of late frosts, heavy spring rains, or too deep planting, and a second lot has to be put in, which postpones the harvest several weeks. Providence is inscrutable about the weather, but it is possible to circumvent the other trouble. Make a shallow trench and place the beans at the bottom, so that the top of each is just on a level with the soil, and as they come up fill in the trench gradually. Strong roots are formed in this way without the sprout having to push through so much earth, which it often seems physically incapable of doing when the ground is heavy and cold.

Pole limas make a good cover for the sunny side of a wire fence, and afford an extra opportunity for intensiveness.

Is the Golden Queen Raspberry unknown, or why do very few people plant it to furnish fruit for their home tables? It is not marketable on account of its extreme fragility, but the pale yellow color and delicate flavor appeal to eye and palate, and made into jam it is a toothsome thing. Serve the jam with cream cheese and you instantly become a camouflage artist, for nearly everyone mistakes it for a thick bar-le-duc.

Now as to flowers. A friendly nurseryman not far from here was chatting about herbaceous plants one day, and the following nuggets of wisdom were obtained from him: The hardy blue Salvia is a straggling and untidy fellow, with only a glorious color to make up for disorderly habits. If, however, when he is about two feet tall, you cut him back severely, he will bush out, be easier to handle, and improve the appearance of the border. Heuchera, or Coral Bells, can be made to bloom nearly the entire season by cutting off the first crop of blossoms before they go to seed. I have masses of them with white Dictamnus in front and a privet hedge to supply the green background, and the effect is lovely. Achillea Boule de Neige is a great improvement over Achillea the Pearl, which in my garden seeds itself abominably, gets tangled up in such a way that it is impossible to weed it, and is a general nuisance. White flowers are so indispensable outdoors and for picking that one turns with relief to Boule de Neige which is stocky, erect in habit, and altogether a well behaved specimen.

The same nurseryman has propagated a most entrancing Meadow Rue, pale lavender and apparently a strong grower. Although not on the market yet, I managed to conscript a few plants for my own use, and can scarcely wait to see what they will do next summer. After numerous disappointments I have concluded that the proof of the plant is in the blooming, if such a paraphrase is permissible.

The garden experts are always asking us to make plans for the spring work during the winter. Why not go a step farther and make them the autumn before while the crops are being harvested? At that time many things come up which we determine to do otherwise the next year, and then promptly forget all about. A map showing how we planted the vegetables and the succession of varieties in 1918, with the results and projected changes tabulated on the margin, would be a great assistance in 1919, and might make a surprising difference on the credit side of the vegetable ledger.

Ohio. KATE B. BURTON.

Geraniums in Winter

HEALTHY blooming Geraniums are very decorative and they blossom all winter with less care than most flowers demand. In order to get them select for potting new plants that have not blossomed and the few backward ones which failed to bloom. Have small pots for each plant, because the plants will produce all roots and no foliage when there is too much crock room. Good drainage is a necessity. A large hole in the pot and a layer of two inches of pieces of charcoal or broken flower pots in the bottom of each pot will provide the best drainage. Have plenty of rich soil placed rather compactly around the roots; also sand, which is heating to soil. If it is possible, keep the plants in a sunny window of a cool room; when long shoots grow out they should be pinched back.

Watering is the most important and most difficult task in taking care of potted plants. It is impossible to say exactly how much water should be given to plants in pots as the conditions under which plants are grown, the temperature, and the state of the weather, influence the answer. Experience alone teaches when water is necessary; but if the amateur takes care to water his plants only when the soil begins to get dry and before it has really got dry, he cannot go far wrong. One rule, however, needs to be observed without fail, that when water is applied let the pot be filled to the rim, so that the soil is moistened thoroughly, then give no water until the soil appears to need it.

One of the chief causes of failure in growing plants in pots is that of giving a little water frequently. This practice is bound to result in poor soil, and the consequent ill health of the plants. Geranium leaves should be washed every week and dead leaves picked off. Keep a small stiff brush to give the pots an occasional good scrubbing; even though the pots are set in jardinières, they need cleaning once in a while. The pots are porous and become easily clogged if not washed. If the pot is kept clean the soil will keep fresh and will never become sour and injure the plants. Turn the flowers each day or so to prevent them from growing one-sided. The box plant food is best for Geraniums, and the easiest applied. Lime water poured over the sour dirt will sweeten it in winter.

Maryland. SAMUEL H. GAREKOL.

When Flowers Do More Than Medicine

Stories of Our Base Hospitals

NOTICE TO READER: When you finish reading this magazine place a 1-cent stamp on this notice, mail the magazine, and it will be placed in the hands of our soldiers and sailors destined to proceed overseas. No wrapper, no address. A. S. BURLESON,
Postmaster-General.

GARDEN MAGAZINE

DECEMBER, 1918

PRICE, 25 CENTS

Luther Burbank—Life-Long Friend of Flowers

An Appreciation by the Advertising Man

Two lovely Shasta Daisies, in view of Mt. Shasta

In the early seventies there lived, in the Massachusetts hills, a lad into whose heart God had put an extraordinary amount of compassion and sympathy for the helpless. Soon after he came to an age where he began to appreciate the significance of things he became aware of the utter contempt with which the farmers thereabouts treated the wild or Ox-eye Daisy. It was persecuted with relentless vigor as a dangerous weed in which, however, the boy's vision could see much more than the average man.

In due time this lad moved to the Golden State. With him he took some seeds of this much despised, and, on his part, much pitied wild Daisy. In due time he sowed the seeds, he nursed the seedlings, and then began that process of selection which ultimately resulted in the birth of the Shasta Daisy. Rivaling in brilliancy, the wonderful snow-capped Mount Shasta, this Daisy now graces thousands of gardens, gladdens millions of hearts, and all because a boy pitied the despised weed of the rough Massachusetts hills.

What Luther Burbank did for the Daisy, he did for scores of other flowers. Soon after he became established in the Golden State, he became interested in the State's flower, the California Poppy. With loving care he fertilized and hybridized existing forms; with more care he studied the habits and characteristics of thousands of seedlings, and in due time he gave to the world an entirely new race of California Poppies, larger, more brilliant, more vigorous than its semi-wild ancestors.

Nor have Luther Burbank's efforts been confined to flowers from seeds. His hybrid Gladioli, the collection of which includes nearly 100,000 varieties, are adding to his fame. Amaryllis with flowers eight and ten inches across are opening the eyes of garden lovers everywhere to the possibilities of patience and preseverance rightly applied in the garden.

And now, plant lovers of America, behold America's foremost plant breeder, slightly gray around the temples, but with the fire of youth still in his eyes, stretching out his hands, and beseeching you to "Say it with Flowers."

"Say it with Flowers"

has been the eternal force which, through all the years, has helped to kindle the enthusiasm of a Luther Burbank, whose answer to the appeal we now have in scores of improved forms of flowers. To find recognition for a plant little better than a weed, proved the starting point. To make America one glorious flower garden, is the inspiring ideal which keeps Luther Burbank, even at his advanced age, busy on an average eighteen hours a day looking after his pets.

Mr. Burbank is not given to writing about his work and himself, being, as all philosophers, a modest man. But he publishes a catalogue, and I am sure he will gladly mail a copy to all the garden makers in America, especially if they mention the Garden Magazine.

Luther Burbank, whose name is quite familiar to gardeners as a plant breeder and introducer of novelties, is an active member of the National War Garden Commission

Burpee's Sweet Peas

13

FOR 1919 we offer 13 magnificent novelties in Burpee's New Early Flowering Spencers. The house of Burpee has been long famous as American Headquarters for Sweet Peas, and in the years that have passed, we have introduced hundreds of new varieties but never before in any single year, have we had as many as thirteen new ones to offer.

Burpee's Sweet Peas, during the past few years, have been awarded seven silver cups, six gold medals, and innumerable certificates for new varieties, thus clearly demonstrating the great superiority of the stock that we offer.

Burpee's New Early Flowering Spencers

Realizing the future for, and importance of, this new class for winter flowering under glass, also for outdoor blooming during the winter months, in all frostless localities, we began crossing the summer-flowering Spencers with the Burpee early or winter-flowering Grandifloras in the summer of 1909.

From sowings made under glass in August they may be had in bloom for Thanksgiving and from September sowings for Christmas.

Grown in the open, they begin to flower several weeks ahead of the regular or summer-flowering Spencers, and if no seed-pods are allowed to form will continue blooming quite as long as that type.

Sown in Florida, California and other Southern States toward the end of September, they will bloom from Christmas until April or May. Moreover, they are just the type of Sweet Pea for Japan, Australia, New Zealand and similar climates, where they bloom and flourish during the cool months of winter and early spring, and until the weather becomes too intensely hot.

Burpee's Early Blue Jacket. This novelty will certainly become popular with all Sweet Pea lovers who prefer the dark shades. It is a rich dark navy-blue self. Extremely free flowering and usually produced in fours. **Pkt. 15c.; 2 for 25c.**

Burpee's Early Cherry Ripe. A particularly bright and taking color and quite new in this section. It might be described as a glowing cherry or salmon-cerise self. Awarded Certificate of Merit at the International Spring Show, New York, March 20, 1918. **Pkt. 15c.; 2 for 25.**

Burpee's Early Daintiness. This has always been a favorite since it was first exhibited in 1915 when it was certificated. We have only now been able to work up a sufficient stock to offer to our friends. A strong grower with flowers of largest size and usually produced in fours. Color pure white edged rose. Similar to Summer-flowering Dainty. **Pkt. 10c.; ½ oz. 75c.; oz., $1.25; ¼ lb., $3.75; lb., $12.50.**

Burpee's Early Fantasy. Striped and marbled with rich rose-pink on a creamy white ground. Exceedingly bright and makes a telling bunch when out. Extremely free and a continuous bloomer, the flowers usally borne in threes and fours on long stems. **Pkt., 15c.; 2 for 25c.**

Burpee's Early Favorite. A very free and strong growing variety with flowers of good size. Color similar to the old Apple Blossom. Rosy-pink standard and blush wings. The flowers are nicely placed. and usually borne in fours. Excellent for bunching. **Pkt., 15c.; ⅓ oz., $1.75; oz., $3.00.**

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Burpee's Early Lustre. A most distinct and pleasing shade of deep rose-pink with a lustrous coppery-like sheen overlying or suffusing the standard. Flowers of great size and freely produced in fours. A magnificent variety for bunching. **Pkt., 10c.; ¼ oz., $1.00; oz., $1.75; ¼ lb., $5.25; lb., $17.50, postpaid.**

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"Say it with Flowers"

THE GARDEN MAGAZINE

DECEMBER, 1918

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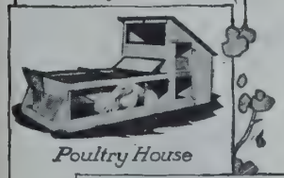

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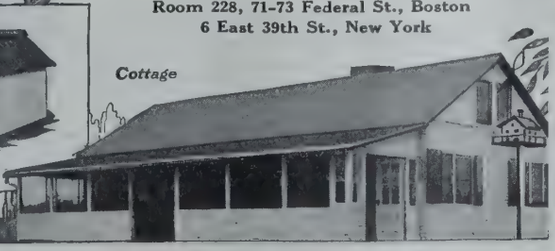

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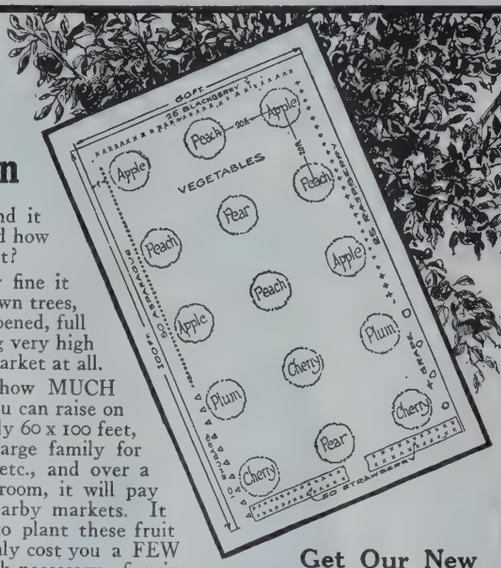

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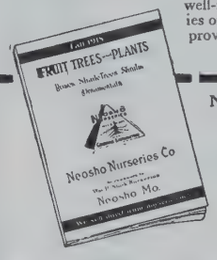

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The Garden Magazine

VOLUME XXVIII DECEMBER, 1918 NUMBER 5

When Flowers Mean More Than Medicines

The Service of Flowers Among the Soldiers in Our Hospitals

By SOPHIE KERR

IT IS after the hour when the luncheon trays have been carried away. The ward is settling down to the tedium of the long dragging afternoon. Here, with bored restlessness, a young head, with its deep brown campaigner's tan curiously dulled because of the pallor of pain that underlies it, moves restlessly on the pillow in weary boredom at the monotony of the days in the hospital. His neighbor lies still, too weak to fret, but his eyes, when he slowly lifts them, honest boy's eyes that they are, are listless and dull, and very lonesome.

Then suddenly there is a faint stir outside, the murmur of women's voices tuned to sympathy and gentleness, and a whiff of perfume—Roses, Carnations, Lemon Verbena, dewysweet, fresh with outdoors, drifts down past the long row of white beds. The restless head turns eagerly toward the door, his neighbor's dull eyes brighten with expectancy. A thrill of eagerness runs through the whole ward and the word goes round:

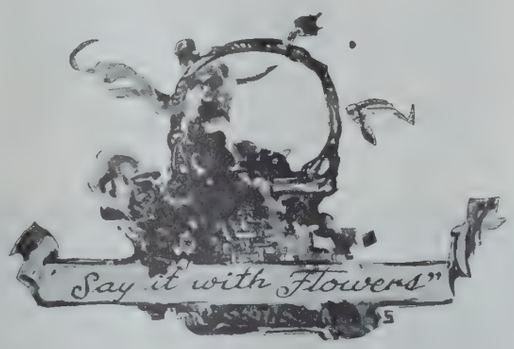
"The Flower Ladies have come!"

It is true. And there isn't a man in the ward who doesn't brighten up when the Flower Ladies, as they are called—and presently I will tell you who they are—open the door of the ward and come in with their great baskets heaped with flowers. There are many wards in the hospital, but the Flower Ladies do not seem to hurry. They have time to stop and talk, to ask kindly questions, to call the boys by name whom they have seen before, even to make a little absurd joke, such as boys love, now and then, and win a reward of appreciative chuckles. And as they talk, and pass from bed to bed, their hands are very busy with the flowers.

EACH bedside table has its vase which holds half a dozen flowers, and these are filled by the Flower Ladies, with a flattering recognition of tastes. "You're the boy who likes pink Roses," or "Oh, I saved this little spray of Larkspur just for you—you liked it so much the last time we were here."

Here and there, where a boy is too ill to notice the flowers by his bedside, a fragrant blossom is dropped on his pillow, where he can enjoy the perfume. And to make a beauty spot for those who are getting better, a big bouquet is placed on the table at the end of the ward. All this, mind you, without bothering the nurses for fresh water for the vases, or asking them to leave their duties to help arrange the flowers. The service of the Flower Ladies is designed to be a real service to all those with whom it must come in contact.

And when all the vases are arranged and all the soldier boys—or sailor boys perhaps—have had a word of greeting and cheer, the Flower Ladies go into the next ward followed by a chorus of "Come again soon" and "Goodbye, thank you a million" and all sorts of awkward boyish grateful phrases.



AND now to go back to the real beginning of the story. When our wounded and sick soldiers and sailors began to be brought back to America to the base hospitals in this country, that wonderful organization, the National League for Woman's Service, began to have the comfort and welfare of these boys very much on its mind. It is not the custom of the members of the League merely to recognize a condition—they act, and act promptly. In this case they acted on a plan made by one of their members, Mrs. J. Clark Curtin. It was Mrs. Curtin who became chairman of a committee charged with the responsibility of collecting and distributing the flowers among the hospitals, and since a large number of the base hospitals are in New York and its vicinity, the work was started there.

Like Jack's beanstalk, it has grown and grown and grown, all over the country, through the seven hundred branches of the League. And where there are no base hospitals to be given this peculiarly appealing touch of cheer, League workers who are near military training camps have made it part of their service to send and distribute flowers to the sick boys at the camp hospitals. (But that is another story.)

Those of you who have ever been in a hospital for any length of time know well the dreariness and monotony of the days, even with attentive friends calling, and daily gifts of flowers and fruit and all the list of invalid's delicacies that are showered on you. Picture then to yourself these soldiers and sailors, sick or wounded, brought back from overseas, and landed into a base hospital some hundreds or maybe thousands of miles from home and friends. Our fighting forces come from every state in the Union—and the wounded lad from Nevada lies in a bed beside another from Texas, with perhaps a drawling-voiced Florida boy on the other side. They are very far away from family and friends; they are weak and maybe a little cross—who blames them if they are?—and they are desperately lonesome and homesick. They need, oh how much they need, a personal kindness, a kindness that is intended just for them, and something quite apart from the excellent ministrations of their nurses. And for them—remember—here come the Flower Ladies!

So you can imagine how really wonderful Mrs. Curtin's idea was for these boys. Yet, like all wonderful ideas, it had to have its practical side. Here was the great question that soon arose—Where can we get sufficient flowers to make our supply really worth while? People with large estates and fine gardens would give, but this could not be reckoned with as a constant unfailing supply. A constant unfailing supply, brought in daily, was what the hospital service absolutely required, if it was to be a real success. So now comes the other side of the story, the practical side, which is quite as wonderful and as beautiful as the idea itself.

THERE is no one quite so warm-hearted as a cool-headed business man—that is almost an axiom—and the colder the head, the warmer the heart. Naturally, when Mrs. Curtin needed a fairy godmother to produce the flowers for her sick boys in the hospitals, she went to an organization of cool-headed successful business men, the Society of American Florists, and there—why *of course* she found her Fairy Godmother—I daresay I should say Fairy Godfather and put the word in the plural at that—and the unfailing supply of flowers was instantly forthcoming.

Two places were set aside for collection—roomy quarters over in the late West Twenties, which is the stronghold of the wholesale florists of New York, and there each day the flowers are brought, great glowing perfumed masses of flowers, not faded ones, or leftovers, or crushed or overblown, but just as fresh as can be obtained. The florists, in common with the rest of us Americans, believe that there is nothing too good for the boys in the service, and so they gave, and are giving, freely of their best.

You will please remember, too, that the florists, this year, are laboring under some pretty stiff war conditions. To begin with, their supply of fuel has been cut down exactly one half by the fuel administration. There is one big floral firm out in the Middle West that has a coal mine right on its own property, in its own back yard, as it were, yet it is only allowed to use fifty per cent. of what it has been necessary to have in pre-war years.

It is more than ever difficult for the florists

to get their usual replenishing stocks. Practically no bulbs have been sent from Holland this year, whence before came great cargoes of Tulips and Narcissus, Hyacinths and Freesias. As for Belgium, once a land of florists and nurserymen—almost all our potted Azaleas, for instance, were grown in Belgium—it is now a dreary flowerless waste, for what Germany could not steal she has wickedly destroyed. So with fuel cut in half and these staple stocks not to be had at all, the florist has big problems to solve.

Add to these the fact that many, many people have come to believe that flowers are a luxury, like taxis and white kid gloves, and have decided to cut out buying them. And then think of the increased cost of labor and greenhouse supplies, and everything else that a florist has to use, and you'll see without further explanation that the florists might be pardoned and excused if they wouldn't give away a single flower to any one.

BUT none of these things has stopped their generosity. When they give their flowers they are giving the staples of their trade, taking money from their pockets—but their record for giving even under the adverse circumstances I have recited above might well make some of the rest of us indulge in some pretty soul-searching thoughts.

I have said that the Florists' Association is composed of eminently practical men, and the way they have assembled and made available the great quantities of flowers they have given to this beautiful and touching service proves it. They were not content with just giving the flowers—they saw that there must be some way to give the flowers a little permanence by each bedside. So it was the florists who gave the dozens and dozens of small vases, one of which finds a place on each little white enamelled table, all up and down the many wards, in the many hospitals, and also the big vases to hold the one large central bouquet. They made the gift, you see, thoughtfully complete.

If there is any one in the world who thinks it is a waste of time and effort to take flowers to the sick and wounded boys of our fighting forces, if there are those why say that "boys don't pay any attention to flowers, and think it is sissy and babyish to have them around"—well, this mythical—I am sure he is only mythical—person ought to make the rounds of the hospitals with Mrs. Curtin and her helpers.

At one base hospital, where there are fifty-two wards, the Flower Ladies make their rounds through one half the wards in one day and the other half the next. Some of the boys who have learned their system—convalescing chaps, who can hobble about—are sure to waylay the Flower Ladies and ask for flowers out of turn, so much do they covet them. They will beg most amusingly for "just one rose," or "I do want a red Carnation, they smell so good," and it is hard indeed to withstand them. "I wrote home about the flowers you give us and Mother wants me to thank you for her," is a tribute that is given over and over and over again.

THERE was a pretty incident, too, of the California troops who got the flowers intended for the sailors' hospital. As Mrs. Curtin and her aids, with a motor filled with blooms, were crossing a railroad viaduct they heard the clamor of voices below and got out to see what was going on. They leaned over—their arms filled with flowers—and saw a troop train.

At once, of course, the occupants of the troop train saw the flowers. "Oh throw us down some flowers," they begged. The Flower Ladies complied, willingly, and added magazines and cigarettes—stripped the motor cars bare of everything that had been intended for the sailors.

"Where are you from, boys?" they asked.

"California, and we've been on the train for seven days and we're aw'fly sick of it. The flowers are like a little piece of home—we've got lots of flowers in California. Thank you and thank you for them."

"You're more than welcome. We were taking them over to the sailors in the hospital on Ellis Island," the Flower Ladies explained.

"Give the sailors our love," chorused the voices below, "and ask them not to mind that we got their treat, just this once. It means a lot to us."

So the Flower Ladies went on, empty-handed, and when they got to the hospital they told the sailors exactly what had become of the flowers and cigarettes and magazines, and then—oh, the good sports they were—every sailor that could lift his voice joined in a hearty cheer for the boys that had got their treat and for the women who had been wise enough to give it to them.

Yes, the boys like the flowers—even the ones who say the least about it. It is natural that it should be so, for it must be a warped and debased nature which does not respond to beauty and color and perfume cunningly combined by Nature into a blossom.

But the flowers do much more than give a merely esthetic pleasure. It has been found that their presence in a ward has a distinct therapeutic value. In cases of shell-shock they have been known to rouse the scattered faculties when all else has failed.

For three weeks one pitiful lad, suffering with shell-shock, could not be induced to speak. Nothing roused him, nothing mattered to him.

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Distribution of flowers to soldiers in the Columbia base hospital, New York, under the direction for the National League for Woman's Service

He had to be fed and tended as if he were a baby. It seemed as if, unless he could speedily be roused, that he would be doomed to a life of hopeless idiocy.

ALL this happened at a base hospital near Baltimore, where, in the course of events came a well known near-by florist to show the authorities in charge of the grounds how to plant their flower beds and borders around the building. It is almost needless to add that this florist contributed many of the plants which were to be used in the aforesaid flower beds, and it was one of these plants, a thrifty blooming Geranium, which was placed on a table directly in front of this obstinate shell-shock case.

After a time the vague and wandering eyes focussed on the lovely plant, and a little glimmer of reason crept into them. Then, with an enormous effort, he tried to say something—the first time he had even shown that he could speak. At last, weakly, he managed to bring out the word "pretty," just as as a little lisping child might do it.

It was the beginning of his recovery—a slow recovery, but a sure one. His senses reawakened, his appetite came back, his faculties returned to him, and he was brought back to a world of sanity, to the future of any normal human being. Think what this means to him and to his family. Is it any wonder that the doctor in charge of this hospital claims that flowers are his best medicine, and declares that a bunch of flowers in every ward, every day, should be a recognized part of the hospital equipment?

ONE of the Flower Ladies tells a similar story of a shell-shocked soldier who lay apathetic on his pillow until a rose was given him. Its perfume, heavenly-sweet, seemed to interest and yet to puzzle him. He asked, stupidly enough, what the flower was and when he was told it was a Rose he called back his lost memory and said, painfully groping for the words, "They—have—Roses—in France—but—but—they don't—they don't smell like this."

What did the perfume of that flower recall, do you think—if not his march through the streets of some picturesque little town in France, with tremulous joyful women and shouting children offering flowers to him and to his comrades, as they welcomed them for their share in the great crusade for liberty? As in the case of the boy in Baltimore, this recognition of the flower was the beginning of the cure, and to-day that boy is sound and well.

THERE is an Italian scientist who holds the theory that more associated ideas are aroused by the sense of smell than by either sight or sound, and the recognition of this theory and its application to reconstruction work among our returned fighting men, may prove a tremendous helping factor to recovery, especially in the shell-shock cases. The testimony of many physicians who are engaged in this important work will bear this out, and looked at from this angle, what added importance is given to the work of the Flower Ladies and their faithful aids, the florists.

The following letter speaks for itself:

BROAD STREET HOSPITAL
in the City of New York

MY DEAR MRS. CURTIN:

Your kind letter was received and I desire to emphasize the fact that the donation of flowers to the wounded sailors and soldiers of our Hospital has had a decidedly beneficial effect upon them.

The effect is not only psychic, but the pleasure of having received this offering has a decidedly stimulating effect upon the sick and undoubtedly shortens their convalescence.

Your good work in personally distributing these flowers has been very much appreciated by the Hospital, and we desire to second your efforts to secure a large coal supply for the florists who have so kindly donated these flowers. With assurances of our sincere appreciation,

I am, Very truly yours
WM. H. DIEFFENBACH, President, Medical Board.

PERHAPS the most touching story yet told of this flower hospital service is that of the French sailor, a boy of eighteen, who had been submarined, and though rescued, was left weakened by the bitter exposure, for he had been hours on a frail raft in a wintry sea before he was rescued. However, he went back to the service and his vessel one day landed in America. While he was here pleurisy seized him and he was sent to a hospital. It was in one of these that the youthful Ally was placed, and there the Flower Ladies came to know him.

He was a true Frenchman, little Eugene with all the virtues of that great nation—courage, sweetness, charm, gayety—and he soon became a favorite with everyone. All that could be done for him was gladly accorded, but it was no use. Day by day his strength ebbed away, but to the last he smiled and was brave.

And then one day the Flower Ladies came to the hospital with their fragrant burden of bloom—but little Jean could not welcome them, for he had "gone West" an hour before. It chanced that they had red Roses that day, great armfuls of them, rich-colored, fragrant, velvet-petalled, and with them they gently covered the wasted body, and a photographer was hastily summoned to make a picture that could be sent back to little Eugene's mother in France, as a token that her son had not died as a stranger in a strange land—but among friends who truly cared for him.

The other boys in the ward, the Americans, received their flowers as usual, but, without saying a word, they limped and hobbled, one by one, to Eugene's bier, and gave those flowers to him—their last tribute. Those who were too ill to rise, silently handed their flowers to their stronger companions and these, too, were added. And Eu-

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Inside the hospital the distribution goes on just the same. Mrs. J. Clark Curtin on the right. Flowers are given by the commercial florists

gene lay there, still, with a little smile on his lips as befits a sailor of France, as if understanding and grateful. Perhaps he was. Who knows?

The florists have adopted the appealing slogan: "Say it with Flowers." I like to remember that Eugene's American comrades said with flowers all that their hearts felt, but which they had no power to say—sympathy, sorrow, tenderness, regret, appreciation, that's what those boys were feeling and beautifully expressing as they laid their flowers on the dead boy's bier.

ONE of my most treasured possessions is a thin little book, bound in faded blue, with the words "Floral Dictionary" on the cover in letters of tarnished gold. My father, who loved flowers and trees more dearly than people, compiled it when he was no older than the little French sailor, Eugene, whose story I have just told. Quaint interpretations of the symbolism of flowers, interspersed with bits of poetry, fill its few pages. I find here, for instance, that the Blue Canterbury Bell means "Constancy"; the Hawthorn, "Hope, I thee invoke"; the Trumpet Honeysuckle, "I have dreams of thee"; the Sunflower, "Smile on me still"—and I smile, too, remembering that this was compiled in the long-ago days when young gentlemen wore shawls instead of overcoats; when young ladies were picturesque in crinoline and flowers; when serenades and romantic verses were part of every lover's siege of courtship. But at the end of the little volume there is a couplet, time-spotted on the yellowing paper:

"All the token flowers can tell
What words can never speak so well."

In that simple bit of rhyme we see the precursor of the more crisp and expressive, "Say it with Flowers," but the feeling and the sincerity of the sentiment have not changed, in spite of all the years that have gone since that faded little blue book was placed, new printed and bright, in its young writer's hands.

This has been proven many times over by the response of the boys when the flowers are brought to them. Most of these boys come from homes, real homes, just like yours and mine. They crave the home atmosphere, the little feminine touches that Mother and Sister and Aunt Mary gave. And the unhurried friendly manner of the Flower Ladies, coming into the hospital ward in their prettiest frocks—for the boys like it specially when their visitors wear pretty soft frocks with laces and frills—and fussing about with the little vases, brings something of real homelike feeling into the bareness and dreariness of the hospital—and no matter how efficient and fine a hospital may be, it is always bare and drear. It is this friendly home feeling that makes it easy for the boys to talk to the Flower Ladies. Pictures of the real home-folks are brought out from beneath pillows and proudly displayed. Confidences are given, and sometimes small special services are asked. "Could you buy a present for me to send my mother on her birthday? I've been saving my pay and I intended to get her something fine and dandy, but here I am laid up." Could any one withstand a plea to buy a soldier's mother a "fine and dandy" birthday present?

As for the convalescents, they too ask for help—I don't mean material help, but advice and direction. "I'm going to get out of here tomorrow and I don't know where to go. Could you tell me some place? My home's in Oregon, and I don't know a thing about New York." The Flower Ladies are well equipped to answer questions like this. No one can estimate the value of these friendly conversations and these special services.

And here are some extracts from letters written straight from the hearts of grateful boys, telling in their own way what the Flower Ladies mean to them.

WERE it but possible for you to be here and listen to the remarks with which your flowers are received by the fellows.

My little "Thank you" embodies the sentiment of seventy-five appreciative boys, and my regret is that each one cannot tell you as he would wish to.

Be quite sure, Mrs. Curtin, we very sincerely regard you as one who loves us and for whom we retain our highest regards.

JUST a few lines of thanks from the sailors to show our appreciation for your thoughtfulness in sending us the splendid bunch of flowers which reached us in good condition. We have them in a large vase in the sun parlor and they sure make the room look cheery.

I WANT to express my sincere appreciation for the many kindnesses received through you from the above association, and want them to know how the fresh flowers constantly at my bedside made my convalescence easier.

In speaking this way I know I'm voicing the feeling of all the men who have the slightest appreciation for beautiful things, which is about ninety-nine per cent. while confined to the hospital.

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In the wholesale florists' district of New York City there are daily gifts of flowers for sailors and soldiers in the hospitals. The National League for Woman's Service collects and distributes them

FRIDAY when you come will you please bring me a bunch of long stem flowers for Miss Johnson, which was our nurse, but she left. She is that little fat woman you uste (sic) see when you were here Fridays.

Will close now, hoping to see you Friday.

SO FAR I have spoken of nothing but the flowers that are taken to the hospitals, and they are, indeed, the chief thing—with all that goes with them of good feeling and good cheer. But the Flower Ladies undertake also to distribute fruit, and tempting jellies and jams that give just the right fillip to flagging appetites. People who know of this send in barrels of apples—but never enough—and endless jars of sweets—but never enough of these, either. Almost everyone who has a well-filled preserve closet—and few of us have not in these Hooverish days—but can spare a jar or two for a sick soldier or sailor. A little taste of orange marmalade, or a spoonful of preserved strawberries, may make all the difference in the world in a meal. Even the best hospital fare is uninteresting and monotonous. Or if you wish to "Say it with Flowers" you can go to the local flower shop and have the order telegraphed to the Correspondent member of the Florists' Telegraph Delivery Association in the town where the fresh flowers are to be delivered.

I did not intend to do anything in the article but tell of the Flower Ladies and their work, but I cannot help asking you, dear gentle readers, if by chance you haven't a bushel of apples in the fruit cellar that you don't need, or if you couldn't share a jar or so of your jams with the boys who have shared their lives with you?

One day last fall some friend from the country brought in a great box of specially fine apples to the N. L. W. S. Headquarters, at 257 Madison Avenue, New York City (yes, I put that address there intentionally) and they were promptly taken to a hospital where there chanced to be a number of Minnesota boys. You doubtless know that Minnesota raises much splendid fruit, so you may be sure those boys know what good apples are. And the way they fell on those big rosy New York apples and devoured them and enjoyed them—well, the Head Nurse in charge of that hospital pronounced that fruit the best tonic that had been between their four walls for many a long day. So if you have any apples that you don't know what to do with, or any pears either, this little story may serve as a suggestion.

As for the jams and jellies—please remember that Christmas is very near and that we all hanker for something a little festive to eat during the holiday season. It goes with the time. In your store room there may be a jar of cherries, a glass or two of grape jelly, or raspberry jam which would give a bit of Chritsmas cheer to the Christmas dinner of a sick or wounded boy, far from home. If you are one of these incredible people who haven't a store room to go to, you can at least make a few glasses of orange or grapefruit marmalade, and send them in, all fresh and golden and fruity. It's the easiest thing in the world to make and I'll send my own recipe, that never fails, if you haven't one of your own. The expense is negligible—for a dollar you can make at least a dozen glasses of the delicious stuff. And the Flower Ladies will gladly deliver it to the hospitals—and the boys are guaranteed to do the rest.

AS I said, I intended to write this article merely as a chronicle of a fine idea, finely achieved, but it is so strongly borne in on me that this particular form of service is one in which all women can easily join, and in which they are sure to take special pleasure, that I cannot help making the suggestion that they do so. It is just that small added modicum of beauty and sweetness which every true woman finds so satisfying to give.

When, in August 1914, the Belgians soldiers went forward to the heroic defense of their home-land the girls of the city ran out to them and gave them Roses, which they gaily stuck in their gun barrels, and as gaily went on to certain death. When Pershing's troops first marched through Paris the women of Paris ran smiling and sobbing beside them and forced flowers into their hands, which the boys twisted into the cords of their campaign hats, or twisted into the buttonholes of their tunics. And then they marched on to fight beside the sons and husbands and brothers of the flower-giving women. So there is a special fitness that flowers and yet more flowers should be given to the heroes who have come back to us, broken in battle, to be nursed to life and health again. I quote again from my little blue book—compiled before the day when its writer enlisted in 1861 to fight, as have our legions of to-day, for freedom:

"The humblest of God's flowers, made by His art,
More tenderly than man, speaks to the heart."

AMONG OUR GARDEN NEIGHBORS

We All Pay the Price

WE WERE lunching in a dining car of one of the large eastern railroads when the Professor pointed to two sweet potatoes that had been brought in response to my order and remarked: "It's a pity, isn't it, that as long as you are going to pay for three potatoes you only get two—and that through no fault of the Railroad Administration or Mr. Hoover, or even the war."

"Plant diseases are primarily responsible," he continued, "and the other reason for your getting less than you pay for is the ignorance of people in general, and of the growers and handlers of the sweet potato crop of what they do, what the troubles are, and how to cure and prevent them. In other words, twenty-four and a half per cent. of the sweet potatoes harvested are destroyed, wasted, before they reach the consumer, by rots that develop under unfavorable storage conditions. Another seven and three quarters per cent. are destroyed by diseases that attack the crop in the field, so that on the whole just about one third of the sweet potato crop or about 41 million bushels is lost even though it is planted and ultimately paid for by people who buy what is left.

"That loss seems serious because it comes right up against you, but there are many others like it of far greater importance to the country and just at present, to our Allies. For instance, 9 per cent. of our wheat crop—on an average crop basis, 64,440,000 bushels—is destroyed each year by plant diseases; so it is with two and a half million bushels of beans 1,866,000 bales of cotton, 117¾ million bushels of white potatoes, and so on.

"To put it another way, in 1917 the exports of rye from the United States amounted to about fourteen million bushels, if it had not been for one disease—ergot—they could have been two and a half million more; the same year smut destroyed twice as much corn as the country exported; again, if bunt and loose smut had been completely controlled—as they can be—we would have been able to send the Allies 33 million more bushels of wheat than we did. That's the story all the way through the list of our farm, garden, and orchard products."

Not a very happy condition, is it? But fortunately it is only part of the story, and the rest, which has to do with the future as well as the recent past, strikes a much happier note. For it has to do with the mobilization of the scientists of the country who are making the study of these destructive diseases and methods for their control their life work. Plant doctors, they are called by most who know them and their work, but formally they compose the American Phytopathological Society, which is going to play a big part in the future improvement of our agriculture and the nation's increased production of food crops.

In January, 1918, during its annual meeting this organization decided that it had a real war work to perform in making it possible for farmers to harvest more of what they plant and for consumers to obtain more of what is raised than has been the case in the past—as suggested by the figures given above. So the War Emergency Board of the American Plant Pathologists was created, with Professor H. H. Whetzel of Cornell University as Chairman and Commissioner for the Northeast, and seven other Commissioners representing respectively the West, the Great Plains, the Northcentral East, the Central East, the South, Canada, and plant pathologists in general, the latter representative being an expert of the U. S. Department of Agriculture. The speaker in the dining car was Professor Whetzel.

Already, there have been conferences and another is to be held in Baltimore, December 27 to January 1, to which a number of foreign plant pathologists have been invited.

The important fact is, therefore, that in the war against plant diseases, the United States has made a tremendous advance in the last twelve months. This, in view of a statement made in 1914 by a leading German plant pathologist that this country was then twenty-five years ahead of any country of Europe in this subject, means a good deal.

It remains only to call attention to the fact that results cannot depend only upon the plant doctors of the country, but also upon the rest of the population. Those who are raising crops must lend their aid by adopting a receptive spirit toward the facts that are being learned, and by acting upon the recommendations of the plant pathologists as to how diseases may be controlled and prevented. And the great mass of the public should appreciate more clearly the immense practical importance of the work these scientists are doing. The country is responding well to the call for the destruction of the form of Barberry that serves as host for one stage of the destructive wheat rust. But this is only one of the menaces that threaten our food crops, which are, after all, no less the food crops of all the civilized world.

But ornamental plants are also victims of disease, a fact however, that is not capable of equally graphic presentation. Yet, for those who would like to have the highest returns in pure beauty the chart or table given on page 144 will appeal.

The Next Step for This Magazine

ONLY poets and philosophers may with safety construct definite plans for future events; and yet it is hard to avoid falling in line with the general practise of retrospect and forward visions as we cross the threshold of the year. The winter is indeed the season of the gardener's discontent; there is little actual activity, but much opportunity for reflection. As concerns ourselves and our readers the past is past. But the future—?

1919 marks the opening of a new era for the work of the Garden Magazine. The campaign of intensive food production followed through the last two growing seasons has produced the desired results. War Gardens are firmly established for victory and for the peace that is coming. Tillage of the soil has assumed a new relation to the people and as the new day dawns the garden will rise to a bigger and nobler place in the life of the people.

A Dip Into The Future

The Garden Magazine, during the coming year, will interpret this new spirit of the American home garden, the pleasure as well as the comfort that is coupled with the making of the home and its surroundings. In accord with the trend of the times our pages will be more intimate, more personal, with greater attention to the details of materials used and the intrinsic merits of individual plants; and while the practical service of the home plot will not be forgotten—we will continue the work of introducing high quality varieties in food plants—yet there will be more attention given to the niceties of refinement and artistic development of planting hardy trees and shrubs; the production of flowers in profusion for the adornment of the home; the delights and joys of that most personal and intimate of all features, the rock garden; we will take you in intimate walks among rarities of the Arnold Arboretum and other places of note, we will tell you more about the joys of collecting and of growing plants for their intrinsic quality and beauty; known authorities will discuss the groups in which they specialize.

In short, the Garden Magazine having "done its bit" in the patriotic arousement of utility gardening, will now step onward and resume its even greater responsibility in helping to make this land give a fit welcome "when the boys come home." We dare not show ourselves "run down at the heel." Our home nurseries are stocked with home products to meet the need of new conditions brought about by the disorganization of European industries. The people have mastered the fundamentals of food gardening; and besides, other agencies are now organized to "carry on" efficiently. The pendulum swings back and the cry is for the delights that may be added to the new gardens. "Man cannot live by bread alone." The new period that is opening to American horticulture will find its progress reflected in these pages.

The Florists and Wartimes

WHEN, through necessity in our war preparations, various commissions were appointed by the Government to regulate, accelerate, or restrict production in various lines of industry, all engaged in raising plants and flowers were on the "anxious bench," fearing that their business might be classed as non-essential, and their products as luxuries of a kind to be tabooed during the continuance of the war. While the florist industry, like many others, has been called upon to make sacrifices, the question of essentiality has not yet been raised, nor is it expected that it will ever be.

The first intimation that a limit was to be set upon production came, about a year ago, with an order that fuel for heating greenhouses would be allowed only in proportion to half of what was customarily necessary to maintain sufficient heat throughout a winter, determined by an average consumption in the three seasons preceding the one to be affected by the order. This meant, of course, cutting down production fully one half, by abandoning, as nearly as it could be done, one-half of the area covered by glass. The outlook was alarming to an industry the size of which is hardly realized by the general public, and the reaction is well presented in a letter from the secretary of the Society of American Florists to whom we applied for data. Mr. John Young writes:

"When it is realized that the estimated area in the United States so covered and used is about 1,600 acres representing an investment for greenhouses of about $70,000,000 the loss in product through disuse of buildings is very great. But added to this must be the loss resulting from the idle investment. Assuming that an establishment comprise a glass area of 100,000 sq. ft.—there are very many such—and the valuation was one dollar per foot, a figure not at all out of the way, the owner would have a direct out-of-pocket loss in the interest on an investment of $50,000 alone, or $3,000, figured at six per cent. On this basis it may be assumed that the florists are losing, approximately, $2,100,000 per annum through out-of-pocket expense alone, besides the legitimate profit which might be derived from the operation of the closed houses.

"And this is not all. Many establishments have been housing enormous stocks of tropical and semi-tropical plants which cannot be subjected to low temperatures, and how to take care of these during winter has been a problem hard to solve. Of course, stocks have during the year been reduced as much as possible, but such growers are confronted with the prospect of large losses, unless the crowded-out material can be removed to districts where it can be housed without the necessity for artificial heat.

"But the florists have cheerfully accepted the situation. Was it not imposed upon them that we might win the war? Because from the nature of their business their losses were necessarily greater under the restrictions imposed than would be the case in other industries, whose manufactured stock and materials could be easily shelved or stored without depreciation, have they given evidence of depressed spirits or forebodings of ruin? No, indeed! They have taken part of their products into war work of the humanitarian kind and are helping to soothe some of the sufferings our wounded and sick soldiers and sailors are called upon to endure.

"Early this year, Mr. Frederick R. Newbold, treasurer of the Horticultural Society of New York and one of the directors of the American Fund for French Wounded, approached the Society of American Florists, through the secretary's office, with the suggestion that it promote some organized work covering the supply of flowers to the sick and wounded returned from

overseas and lying in our base hospitals and other institutions. It had been discovered that the boys, while well supplied with delicacies and comforts of all kinds, craved flowers; and there appeared to be no means of supplying a little bit of floral cheer through ordinary channels. The National League for Woman's Service at that time had started upon the work of flower distribution, with Mrs. J. Clark Curtin at the head of its National Flower Distribution Committee, and after a consultation with her, the aid of the New York Florists' Club was invoked and receiving depots established in New York to which the florists in and around the city sent daily, and are still sending, supplies of flowers, the League's Committee making judicious distribution.

The Society of American Florists then laid a proposal before its members and the trade in general in about seven hundred cities, wherein the League had branches, that when sick and wounded soldiers or sailors were located in institutions within those cities they should provide flowers for distribution through the League in the same way. The proposal was heartily agreed to and the League work has thus been greatly extended.

The suggestive slogan of the Society, "Say it with Flowers," has been adopted by the League also, and the legend is displayed by the League's members in their chapter houses, on their motor cars, and in other ways, so that flowers are carrying a message of sympathy to helpless heroes throughout the land."

The florists are proud in the consciousness of "doing their bit," and we feel our readers will be appreciative that they are doing it effectively.

Exit The "War"

OF COURSE the *war* garden goes, but the garden is still here. The thousands of "war gardeners," having become acquainted with the joys of the soil, let alone any measureable result in the household, are not likely to quit. They will become "victory" gardeners in more than one sense, and just as the victories of battle are celebrated by music and the waving of flags, so will the gardener joyfully raise in his domain, flowers—those symbols of pleasure and peace that are as music to the soul.

The Christmas Call

THE story of the Red Cross has been told so many times that we are likely to forget its significance. There is a great temptation to put such fundamental things into the background, to contribute what we think we can afford merely as a matter of decency, and then to go on earning our pay and spending it, giving our thought to things more novel or more amusing.

Therefore when you are asked to continue your help in the organization we feel that no appeal can be better than the official words of the War Council. "The moment is now come to prepare for Peace. Actual peace may come at any hour; it may be deferred for some time. Until peace is really here, there can be no relaxation in any Red Cross effort incident to active hostilities. But even with peace, let no one suppose that the work of the Red Cross is finished. Millions of American boys are still under arms. Thousands of them are sick and wounded. Owing to the shortage of shipping, it may take a year or more to bring our boys home from France. But, whatever the time, our protecting arms must be about them and their families over the whole period which must elapse before the normal life of peace can be resumed.

"The cessation of War will reveal a picture of misery such as the world has never seen before, especially in the many countries which can not help themselves. The American people will expect the Red Cross to continue to act as their agent in repairing broken spirits and broken bodies. Peace terms and peace conditions will determine how we may best minister to the vast stricken areas which have been harrowed by War, and in this great act of mercy, the heart and spirit of the American people must continue to be mobilized through the American Red Cross.

"On behalf of the Red Cross War Council, we accordingly ask each member of our splendid body of workers throughout the land to bear in mind the solemn obligation which rests upon each one to CARRY ON."

The OPEN COLUMN
Readers Interchanges of Experiences and Ideas

Crinums in Kentucky.—How can I grow in the garden Belladonna Lilies and Crinums and make them bloom in latitude of Lexington, Ky.? I am willing to take any amouut of trouble to cover with glass, ashes, or manure if to be wintered in the ground, preferring some such arrangement as a removable cover which would leave plants to blossom in the garden. In a former GARDEN MAGAZINE article, growing Crinums successfully in a garden in New Jersey is described, but Kentucky is not New Jersey! Crinums and Belladonna Lilies are my joys. Having success with Roses and Lilies, I want to try Crinums.—*Olive Nelson.*

Improvising a Christmas Tree—For many years at Christmas time it has been the custom to put up on Boston Common a large tree, decorated with thousands of electric lights,

Can't get a large enough Christmas tree? Then build it out of smaller ones!

around which the public would gather and sing appropriate carols making a scene that left a pleasant memory throughout the year for those who participated. Last year there was to be an extra effort to arouse the Christmas sentiment and a tree ninety feet high was planned. This tree was of necessity made of 250 smaller trees attached to a central telegraph pole which was sunk into the ground fifteen feet. The small trees were held in place by iron with sockets into which the small trees were driven and spiked. The general effect of the work was excellent and the impression from a distance was of an enormous Spruce tree surmounted by a red star.—*L. J. Doogue.*

Viburnum Carlesii, about which a question appeared in the GARDEN MAGAZINE a few months ago, is a Korean plant, and is especially prized for its fragrant pink and white blossoms, which come very early in the spring. It is by far the most fragrant of all the Viburnums. It was named from a description given by William R. Carles, in 1888. Plants from seeds had been grown in Japan, however, several years before Mr. Carls reported upon the plants found by him in Korea. This Viburnum was taken from Japan to Europe in 1901. It made a strong appeal to Lemoine, the French hybridizer, and many plants were grown by him and widely distributed. Although not nearly so well known as many of the other Viburnums, V. Carlesii is sold by several nurserymen, and is perfectly easy to grow. It has been thriving in the Arnold Arboretum, near Boston, for several years, and seems indifferent to the coldest winters. Not long ago a gentleman from the western part of Winnipeg reported that this Viburnum flourishes there and blooms freely, although the temperature often remains from 20 to 30 degrees below zero for several weeks. Viburnum Carlesii seems to require no special treatment or soil. Yet it is among the most desirable of the early flowering shrubs, both for its beauty and for its sweet scented flowers. It has never fruited in the Arboretum, however, and unlike many of the Viburnums makes no fall display.—*E. I. F.*

—Viburnum Carlesii is one of the earliest of the Viburnums to flower—usually about the middle of May, and has proved perfectly hardy at the Arnold Arboretum and promises to be one of the most beautiful introduced shrubs we possess. The flowers are produced in terminal clusters, three to four inches across, and are borne all over the plant, which is a dwarf compact growing shrub. Before opening, the buds are a deep pink on the outside but as they open the inside of the flowers changes to pure white and individually resembles a Mayflower blossom, but the cluster itself more like that of Rondeletia cordata. The flowers are all perfect and differ from those of the Opulus section where both fertile and sterile flowers are produced. The perfume of the flowers is intensely sweet and although difficult to describe is equally as fragrant as Daphne odora. The leaves are shortly stalked, thick and soft to the touch, being densely hairy on the under side, roundish when mature with serrated margins. It may be rooted from cuttings and is also sent out by European nurserymen as standards grafted on Viburnum lantana. The beauty and fragrance of this plant make it a very desirable addition for small gardens and it can be highly recommended for that purpose or even to plant on rockeries as it flowers when quite small. Seed was obtained by a Japanese firm from Korea in 1885 and a living plant was sent to Kew Gardens by that firm in 1902 where it flowered in 1906. Viburnum bitchuense is often sent out by Japanese and European nurserymen for Viburnum Carlesii. That one is a native of Japan and although the flowers are similar in color and fragrance they are not so large, and the plant has a much loose and straggling habit of growth—*W. J. Judd, Arnold Arboretum.*

For a Different Magazine.—I approve of the suggestion made recently by one reader to the effect that it might be well to print, if not less matter concerning the vegetable garden, at least more concerning fine flowers and ornamental plants in general. It seems to me that other publications, those that serve what might be called "local" communities, and bulletins of the various departments of our Government, are doing the other work well. Your paper would, I am confident, be much more acceptable to the classes of people who subscribe for it if it should regularly confine itself more to articles of high character such as those of Mr. Wilson which appeared in the GARDEN MAGAZINE two or three years ago. But my suggestion and implied request are perhaps not needed and, after doing its "bit" so generously and magnificently, the magazine will come back to what seems to me to be its peculiar sphere, as implied.—*Frank B. Meyer, Ohio.*

—Thanks for your confidence. We agree with you too, and can promise an increased

weight of "ornamentals" in the coming months. Not that we feel any apology is necessary or desired for what the magazine has done in the pressure of war gardening but "autre temps, autre moeurs" as our French friends have it. —*Ed.*

A Soldier in England.—One quiet Sunday afternoon last fall when stationed at an American military camp in England, I had an opportunity to see and admire one of the beautiful English gardens. I had just passed through one of the long tunnels of cool shade so common along England's country roads, and entered a little village, when I was drawn across the street to a fence covered with golden Nasturtiums. I stopped and peered over the fence into the richest profusion of colors I had seen since reaching this side. Asters, Snapdragons, Sweet Peas, Pansies, and many other plants, some of which I did not recognize, were there at their best. I stood for a short time admiring the display when a group of children came toward me from the cottage set back of the garden. Seeing that I was interested in the garden the children began a discussion of the various flowers in the planting. They told me how they had assisted in the making of the garden, and named all the plants and different varieties in the planting. I tried to decide why the flowers grew so well in this garden. I thought perhaps it was the cool, moist atmosphere, and rich soil that made the garden a success. Still I wondered if that were all, if there were not something else, something like love that nature understood and rewarded, causing the gardens of England to thrive so luxuriously. As I trudged back to camp carrying a huge bouquet of Spencer Sweet Peas that the children had showered upon me, I was thrilled with a feeling of joy and extreme goodwill for the gentle people of England. I resolved to pay more attention to gardening when the war is ended if I return alive to America, and I shall keep in mind always England's rich gardens and splendid people.—*Buford Reid, Corp'l. A. E. F.*

A Really Good Looking Native.—The Cow Parsnip (Heracleum lanatum), though regarded as almost a weed, is yet a plant that will work into the garden very nicely, especially in a more or less wild planting. The effect of its foliage is akin to that of the Castor Bean; it is about as rapid a grower, and in good garden soil will grow almost as high. Being perennial it is

Quite a noble decorative plant is this Cow Parsnip, yet neglected because a native weed

there to stay. Individually, the greenish white flowers are insignificant, and parted from the plant have no beauty; but borne as they are in broad umbels, they do become a conspicuous factor during the plant's period of bloom which lasts about two weeks. The Cow Parsnip grows readily from seed and the plants can be moved at all seasons of the year. Transplanted when in bloom, or thereabouts, the plant may wilt to the ground and the new herbage appear to lack vigor, but the following spring, the root will send forth as vigorous a top as could be desired. It requires no protection in the coldest winter and is drought resistant. Cut down it grows a second time. It delights in sunlight, but will do well in partial shade. It is not an aristocrat, but taken altogether it is a very effective plebeian, effective as a single plant and strikingly effective in masses where heavy foliage is required. It is one of those natives that can add variety and under adverse conditions a greater measure of success to our gardens if we will only take the trouble to understand it.—*C. L. Meller, N. D.*

"Gardening" in the Trenches.—It was in a quiet sector in the Verdun region. Rain had been falling and the bottom of the trench was a mush of mud and puddles. The men who were not posted at the lookout points were seeking such cold comfort as they could find in the cramped dugouts. Somewhere down the trench there arose sounds of excitement and bantering remarks. Jack Toomey of Union Hill, N. J., thrust his head out from his shelter and thus addressed an invisible comrade. "It's a Y. M. C.A. guy, Bill. Maybe he's got some smokes or eats. Hey, you Christian, step a little lively, will ye? What, no smokes left? Gee, why don't you stock up when you come this way? Any chocolate? No? What have ye got, pray tell? Stuff to read? Sunday papers? Mutt and Jeff? Baseball dope? No? Say, what do you think this is, anyway? A mission study club? Well give me what you've got and run along." The harassed Y. M. C. A. worker handed Jack a magazine and passed on. The doughboy's head was withdrawn as he settled himself in as comfortable a position as possible and silence reigned for a time. Jack looked at the colored cover, ran over the pages, and then began at the back end of the magazine that had been handed to him. As he perused the pages a puzzled pucker appeared between his brows, and at length he spoke again. "Say, Bill, here's a treat. You'll like this when I get through with it. It's a wild and bloodthirsty sheet called THE GARDEN MAGAZINE. It's got pictures in it. You'll understand some of the pictures, Bill. Here's a story called 'Building a Rock Garden,' with pictures of the Palisades. Say, Bill, what's Achillea tomentosa? Some kind of Mexican chow do you s'pose? Something like hot tomale? And Adonis vernalis. That sounds immoral. And Aethionema jucundum. There's a whole page of this dope, Bill. Whatthehell? Must be in code. Guess I'll pass it up. 'Pink Daisy for Next Summer's Bloom.' Oh, la, la. On with the dance. Here's something in your line, Bill. 'How to Judge Vegetables.' First get your vegetables; hey, Bill? Guess I'll have to write for this paper. 'Producing Food from Wood and Oil.' That must be about the Germans. A wonderful people, Bill, a wonderful people. Here we have 'The Month's Reminder for September.' Sort of a 'Daily Food' thing without Bible verses. Let's see what's in it. Um, yes. 'Get after onions early.' That's good advice, ain't it, Bill? 'Gather the mulch.' I'll have to learn that. New slang, I guess. I wonder what it means. 'Gather the mulch. Begin at once to get together the materials which you will need for mulching later on—leaves, hay, light manure, and so forth. Keep in a dry place where they are available as wanted.' Get it, Bill? It's a dictionary of slang. 'Gather the mulch' means make down your bunk. See? Ah, this ought to be good. 'The Garden Movies, No. 9.' Pictures, Bill. Reading, too. It says to use a fork on potatoes. Must be a sort of book on table etiquette. Hi! 'All rubbish, decayed vegetable tops and weeds that have been destroyed should be cleaned up and burned, as such materials give harbor to hosts of insects to bother next year.' That's trench orders, Bill. How are the cooties to-day? 'Cover individual tender plants by putting a bag over' with a picture of two boy scouts and a gas mask. Now we're getting near where we live. 'Any kind of cover over beans will ward off the first sharp frost.' Say, Bill, how long is it to chow? This thing's getting on my nerves. Any kind of cover over beans—you bet your life." Suddenly he cast the magazine from him out into the mud of the trench. A groan escaped him. "Say, Bill, you don't want to read that. The man that wrote it is crazy. You know what he said? 'Expose potatoes to the air before storing.' Hell!"—*Walter A. Dyer.*

A forty foot Green Wattle, eight years from seed is a remarkable record even for California!

Phenomenal Tree Growth.—The accompanying photograph shows an unusually fine specimen of a Green Wattle (Acacia mollissima). The seed from which this trew grew was planted in September, 1910, so the tree is just eight years old. It is over forty feet high, has a spread of more than 30 feet, and a trunk circumference, measured a foot from the ground, of 42 inches. The phenomenal growth is attributed to the fact that when it was planted there was a melon patch near to it and a little higher up the hill. This patch was made by leveling a spot, spreading green manure to a depth of about two feet and on the top of that good soil. The tree made a wonderful growth that summer, but when the melons were over and the rotted manure desired for other parts of the garden, the manure was found to be a labyrinth of fine hair roots. Undoubtedly the rich, moist soil had caused the roots to spread, and thus the tree developed an extensive root system early in its existence that had a lasting beneficial effect, and it has continued to grow and thrive. The manure, of course, was practically valueless, and was not used, as it seemed a pity to disturb the tree roots, but the tree has been many hundred times worth the expenditure.—*F. H. Mason, San Diego, Cal.*

Kale As a "Foliage" Plant.—A new "foliage" plant that ornamented the entrance to one of our public buildings this summer, proved to be an immense kale. It was grown in a large pot and stood nearly three feet high, its lower leaves being about a foot long. Its plume-like leaves arranged in whorls like those of the Norfolk Island pine make it a surprisingly beautiful plant worthy of being grown as an ornament as well as for food.—*Mary Rutner, Traverse City, Mich.*

Which Flowers Will *you* Grow?

It's not very easy to decide! So the Editor asked a few acknowledged specialists and experts who have actually rendered service in extending acquaintance with their special favorites to explain just why they worship at their chosen shrines. Perhaps the practical answer for the average man is to dally with all until he gets an inspiration of his own.

Why I Grow Peonies

By A. P. Saunders, whose disinterested labors (largely unappreciated by those, derive the benefit, as Secretary of the American Peony Society are his hobby, that differs from so many hobbies in that the benefits are shared by the whole world. Prof. Saunders finds his real delight in rendering the service as a recreation from his educational work.

THE reasons one gives for an enthusiasm are never an explanation, but merely an attempted justification of it. One man grows Roses, another Peonies, another Dahlias, each choosing the flower he likes best, and then later defending his choice in a manner as flattering to his own intelligence as he can make it. So, if I were to say quite candidly why I specialized in Peonies, I should have to admit that it is because I like them better than most other flowers. Yet I can defend my choice with a number of most excellent arguments.

In the first place, everyone who has a garden must be guided by two great limitations, the first of nature, the second of circumstance. By the limitation of nature I mean the conditions of soil and climate; and by the limitation of circumstance I mean the condition of the pocketbook which sets a limit to the amount of available labor in the garden.

Climate is the fundamental consideration, and the Peony seems to rejoice in a bad climate. The winters of the far Northwest have no terrors for it; and Peony enthusiasts are to be found from Manitoba to Alabama, and from California to Maine. The only bad climate for the Peony is one that is too good; that is, too warm and gentle.

In the question of soil the plant is no less obliging; if it be allowed some good food it frets itself very little over questions of clay loam, sandy loam, humus and the like.

When we come to the labor problem it is, for those who must keep busy a staff of gardeners, an objection to the Peony that it requires so little care. A small garden of a dozen or two dozen Peonies could be well dug, manured, and planted in three or four hours; and from that time onward the plants would ask of their happy possessor not more than a couple of hours' work during the entire year, and would reward him with glorious crops of bloom for twenty-five years ere the bed would need re-making! What must be done each year? The plants should be staked and tied before the blooming season, and the bed must be gone over three or four times with the hoe to keep it clean; and that is all.

Contrast the happy and care-free lot of the Peony man with the burdened mind of the Rose grower, for whom the season begins with a general pruning, and the tying up of thorny climbers —hatefullest of jobs—and ends with the laying down of thorny climbers—still hatefuller—while the interval is filled with the long round of sprays: tobacco for thrip; paris green for sawfly; sulphide for mildew; tobacco again, for aphis this time, as the succeeding regiments of cooties of all sorts follow after each other through the summer months—but I was not asked to tell why I do not grow Roses!

But, someone says, the Peony has so little fragrance, and those old reddish purple Peonies are such an ugly color. To which I reply: No worse, dear sir, than those old reddish purple —but I was not going to speak of Roses. And as to fragrance, one word should be enough if emphatically uttered. The plant lover who does not know the odor of Peonies as one of the choicest of garden scents—does not know the odor of Peonies.

Indeed it is not too much to say that only the Peony enthusiast knows the Peony as it exists to-day; for the older sorts that still survive in the average garden are quite superseded by the creations of our time, glorious blooms known as yet only to the few, flowers of an unrivalled splendor and perfection. Varieties like Le Cygne, Thérèse, Milton Hill, Richardson's Grandiflora, would be incredible if we did not actually see them before our eyes; indeed they are incredible in all the months of the year when they are out of bloom.

And that brings me to say a word on another fault too often laid at the door of the Peony: It has such a short season. No, that is the fault of the planter who does not use the Peonies that will give him a longer season. Six weeks is not a short season, and it is not beyond what one may have, by using a little intelligence. And after a six-weeks season in a Peony garden, one needs a rest from the excitement and crowded delights of the time.

Why then do I grow Peonies? Because in color, fragrance, size, and form, the peony is of unsurpassable loveliness; because the plants reward a little care with generous returns; because they have no pests and rarely any disease; because in a climate where only the hardiest plants survive, the Peony "rejoiceth as a strong man to run a race."

Why the Sweet Pea?

By David Burpee, head of the well known seed house that has been so closely identified with the introduction of the flower to the American public.

THAT seemed like a very foolish question at first to me "Why the Sweet Pea?" Sweet Pea, most popular of Annuals, no other comes near to approach it! The flower that I have admired since I have been old enough to admire a flower. Why the Sweet Pea? I know now that the answer to that question is not entirely on the surface.

I asked myself, Why the Sweet Pea above other flowers? Is it the ease with which the Sweet Pea can be grown? Is it the long stems that make it so showy in the garden and so admirable for cutting? Or is it the wonderful colorings of the flower itself? No, it is none of these alone! It is something deeper—a hidden something in the Sweet Pea.

The Sweet Pea makes its appeal through the emotions not through reasons. So how can I answer "Why the Sweet Pea?" Sweet Pea, fairy flower, that waves in the garden free from restraint. In the spirit of its delicate beauty it is the flower of the artist—and still it is the flower of democracy, commonly called "The Poor Man's Orchid."

Steadily and surely the Sweet Pea has grown in popularity for years past, and with the introduction of the waved Spencer type it went forward with leaps and bounds. During these few years of the twentieth century the Sweet Pea has risen from its rank with other annuals to take a place among the most wonderful of all flowers—the Orchid and the Rose.

It is true the Sweet Pea cannot approach the almost lazy luxuriousness of the Orchid. Nor can it equal the rich warmth of the Rose. The beauty of each is unique. Each is supreme in a field of its own—and none can surpass the others because they do not live in parallel planes. Orchid, oriental, spirit of the fatalist! Rose, rich in its warmth, spirit of the materialist! Sweet Pea, aesthetical, spirit of the spiritualist!

In its own beauty the Sweet Pea is supreme and yet it is within the scope of your garden and it can be grown quickly from seed. That after all, perhaps, is the answer. The Sweet Pea is the finest there is in flowers and it can be grown in your garden quickly from seed.

Why I Grow Dahlias

By Maurice Fuld, who years ago stirred up the latent interest in this flower that is largely responsible for the present day popularity.

WHEN one is as intense a flower lover as I am, it is rather difficult to explain one particular kind championed more than any other. Of course, we all have our favorites.

I chose the Dahlia when quite young, and rather amateurish, because then the Dahlia was to me—as it is to millions of other amateurs right now—the flower with which we can try our skill to the exact same extent as the professional gardener does with the Chrysanthemum.

And really, the two flowers have many characteristics alike, only that one to be reared to perfection must be raised in a hothouse, the other all out of doors.

I champion the Dahlia because I love it for its easy (?) culture (easy, when you know how) I love it because it knows no limit as to forms and shapes. I love it because it is so grateful for the attention we give it. From August until frost it makes our gardens glorious.

I love it, for as a child in the garden, it is most playful, you never know just what it will do for you; and then it is such a perfect pal—it will smile and play with you and give you hours and hours of joy.

The Dahlia offers more opportunities for the amateur than any other flower I know of; he can do more with it than the professional and invariably he has the professional all beaten to a standstill; he can with ease breed and cross and produce any quantity of new Dahlias all within the short space of one year, and to my mind this is the climax of joy in a garden.

There is something about the Dahlia that is irresistible. If you begin to grow one or a dozen and grow them with an interest you will become so attached to the Dahlia that you will grow 50 the next year—a hundred the year after. Dahlia growing takes hold of you with a grip.

Joy and happiness from the garden depends on the results of our garden due to our own efforts and no one was ever more proud or happy than I, when I could cut a big bunch of some of my choicest Dahlias and bring them to the city to my friends, for it made them all happier. And do you know, the happy faces of my flowers, often changed the atmosphere of an entire railroad car.

Why I Grow Irises

By B. Y. Morrison, Landscape Architect and a widely traveled student of gardens here and abroad. His acquaintance with the flower is long and keen.

I GROW Irises because I began years ago and now I cannot stop. And because I have been loving them for years, I find some difficulty in telling just why they are my choice above other flowers, for choice always follows, or at least suggests, comparisons, judgments and rejections, and no person who regards his hobby with affection can offer an unbiased presentation of its merits nor does he find pleasure in assuming, even for the moment, a position in which he may appear to cast discredit on other less loved flowers.

The arguments in favor are these: Culturally, the problem is as simple or as difficult as the collector may desire. In matters of variety, there is a wide range both in species and in horticultural forms. In return for labor, the rewards are great. Counted in amount or period of bloom, the comparison is favorable with any perennial; in diversity of color, there is no equal, though some colors known to man are missing; in value for the garden picture, it has few rivals; and for decoration in the house certain forms are invaluable. So in all it measures well, using the standards which should be applied to any candidate.

My personal pleasures in Irises are these. First there is the pleasure which comes to any collector. This may be dismissed without discussion, explanation or defense. Secondly, there is a pleasure which I find in the plant judged from the standpoint of design. There is a dignity and precision in the splendid fan of leaves with their clean vigorous curves, in the sturdy stem, carried with assurance, and in the flowers, lightly poised and of exquisitely delicate tissue. Thirdly—there is a pagan pleasure to be had from the mass of color. From velvet purples through clarets and garnets to pink and which turning through palest green- and gray-whites to yellows and gray lavenders—surely this is a lavish palette. Then given those colors in a tissue which cannot be matched in any other bloom, so that sunlight and shadow play magic with it—and you have no end of riches. And lastly there is the pleasure which has come in the raising of seedlings—a very new pleasure for me, but one which I have enjoyed by proxy, for some time.

Therefore, I am quite content that my Roses should be few and my Peonies and Lilies fewer still, even though the trio be given the old traditional honors, and find my great pleasure in quantities of Iris—with their wealth of color, their subtle perfume, and their festival recurrence which makes mid-May, all poetry.

Why I Grow Roses

By Robert Pyle, whose championship of this flower led to his election as President of the American Rose Society. He has long been associated with the distribution of garden Roses through the Conard & Jones Co. of which he is now the active head.

THE Rose needs no champion; she needs but to be presented. Her sway is unquestioned. She speaks an universal language. Throughout the ages, from the childhood of the race of man, she has been his companion. In every land and in all generations she has graced his life in its most momentous events.

When words fail us utterly she speaks our thoughts. Please note for a moment the significance in these blossoms plucked from the thorny pathway of the past few months:-

1. From the Philadelphia *Bulletin* of October 19th, regarding the liberation of a French City, we read:

LILLE PAYS TRIBUTE TO BRITISH SOLDIERS—Historic scene as City Welcomes—Troops representing the Fifth Army—Showers Roses on Men—"As General Birdwood rode into the city at the head of his troops the crowds broke loose in a,tremendous ovation. The members of the British staff were showered with bouquets along the route and upon entering the square *were thoroughly smothered by the avalanche of Roses thrown by women.*"

2. In a news letter from my friend, Joseph J. Lane, recently on the staff of GARDEN MAGAZINE he writes:

As we lay resting by the side of the road, from out of a group of children that had gathered, there came running toward us a little French girl, her arms laden with flowers. She passed from group to group of us, distributing her precious burden, so we all might share it, when suddenly she stopped in front of the writer, and handed him a rose. "A r-o-s-e, the flower of beauty and fragrance—" one of God's trusted messengers of peace, tranquility, happiness.

And I too suddenly became calm—the weight of the pack on my back passed from my thoughts—the perspiration of the long hike, the excitement of the hour—all went from me and as I looked at the flower in my hand I was intensely happy—I had met someone I knew—and understood.

Of all the flowers, Roses seem to me most companionable. To the traveler they "stand for home." Is there any one throughout our Nation who does *not* need ROSES—I would like to help grow "enough to go 'round."

Why I Grow Chrysanthemums

By Charles H. Totty, who as a progressive florist needs no introduction. He specializes in novelties because he likes to be up to date; and is also a leader among his fellows as President of the great trade organization, the Society of American Florists.

WELL, firstly, because I love them and have done so for many years, and consequently they take up such a large part of my life that were they now taken away I would feel their loss very keenly. More variable in form and color than any other flower they present a bewildering variety to select from. Who, for instance, is not familiar with the hardy types blooming profusely outdoors all fall, long after everything else in the garden has been destroyed by frost? and the wonderful specimens of horticultural art in the exhibitions, the aristocrats of the flower-world; flowers larger than a man's head and tinted every imaginable color except blue. See them accompanied by their army of half-brothers in the splendid Japanese Anemone types with their fluffy centres and weird petalage; with the new Singles as the sisters, which are such an advance over the types of a few years ago, and finish with the little Pompons as the babies to complete the family. See the marvelous plants such as have been shown at the exhibitions in New York, covering not feet but yards and figure these wonderful results are but one season's growth and then ask again—who does not love the "'Mum"?

The odor is clean and pungent, healthful and refreshing, not a heavy languorous fragrance to lull the senses, but a keen flavor that is delightful and invigorates like a good walk on a frosty morning. One can grow 'Mums without a greenhouse and fine blooms too, if given a fair chance in the open garden. They repay the grower handsomely for the time and care spent on their culture.

I have been asked many times if I made a success of growing Chrysanthemums. If success is to be measured by money as the only yardstick, I would say No! but if a congenial occupation, plenty of friends with the same tastes and a solid enduring pleasure and satisfaction are any guarantee of success then am I richly blest, for

during the flowering season my friends from all parts of the country drop in and see me and the Chrysanthemums and the results of my many years' patient work are gratifying indeed. Ask any of the soldiers in any of the Camps, who have received some of our 'Mums, if they liked them, and you will be surprised at the answers you receive.

Why do I grow 'Mums, indeed?

The Appeal of the Gladiolus

By Mrs. A. H. Austin, one of our most successful growers and whose devotion to her favorite flower finds frequent expression in singing its praise in print and in adorning the exhibition talk with the tangible evidences of her cultural skill.

WHAT is its charm? Come with me to my garden. The first leaf blades are before us—standing erect like soldiers of a fairyland—passing in successive changes to a mass of waving, shimmering green in wonderful light reflection.

As roseate hues of dawn give promise of a perfect day, so the early buds assure us of a season of beauty unsurpassed. I believe I may truthfully say, unequaled, for what other flower combines so many virtues? Wonderful coloring, stateliness of spike, massiveness of bloom and marvelous substance are only a few of its valuable qualities. Its range of color, from pure white to almost black, covers every known shade. Some possess a glistening, sparkling lustre, unspeakably lovely by day, and enhanced by artificial light, while others seem of softest, richest velvet. The various forms are interesting and beautiful. The wide-open almost saucer-shaped, the pleasingly ruffled, and the modestly hooded, are some of the most common, and varying in size from one to six inches in diameter.

The spike too, has been transformed, and where once were only short stiff spikes, we now have the taller heavy spike, and still newer ones of such tall graceful slenderness that the word spike seems surely out of place.

Do you wish to share this exquisite loveliness with a faraway friend? It may easily be done for the substance is such that if cut when the buds show color they can be shipped long distances and when unwrapped and placed in water, will open to the topmost bud. The friend may take them to her wounded soldier who, in his helplessness will appreciate their silent cheer. In no place is this beautiful flower more useful and helpful than in the sickroom. But its uses are legion. We see varieties that are tall and stately carrying immense blooms of heavy substance and brilliant coloring, especially valuable for planting among shrubbery, and for other landscape uses, or, in striking contrast, dainty fairy-like blooms suitable for the corsage of the débutante. For house decoration there is a refinement and gracefulness in slender whiplike stems weighted with exquisite blooms many of which are in open bloom at the same time.

This abundance of beauty may be in the homes of all because of their inexpensiveness and ease of culture. They will grow and bloom in any good garden soil.

Dwarf Evergreen Collection where the visitor may get acquainted with and compare these pygmies

In the Shrub Garden the duplicate specimens are arranged "ordinally," for convenience of study (Hydrangeas)

Seen in the Arnold Arboretum

T. A. HAVEMEYER

[EDITOR'S NOTE: *The story of the foundation and general purpose of this splendid institution, located on the outskirts of Boston, was told in a recent issue of* THE GARDEN MAGAZINE *by the Director. As a centre of introduction and distribution of many notable hardy trees and shrubs that now adorn our best public and private gardens the Arboretum has been long recognized as the Mecca for the progressive horticulturist traveling near it. Growing as it does every tree and shrub hardy in its climate, the Arboretum is full of living and continuous interest. But, unfortunately, not everybody can visit it at all times, and in order to interpret in some degree to the plant lovers of America what the Institution offers, Mr. Havemeyer has undertaken to present in these pages a series of notes on the conspicuously attractive plants in season. The present article is but introductory. Subsequent articles will deal with special plants or particular groups as they appeal to the horticulturist. Mr. Havemeyer is not only an appreciative onlooker, but he is also a keen and skilful gardener and grows at his Long Island home one of the most remarkable collections of hardy trees, shrubs, and herbaceous plants to be found in the country. His appraisals are based on both observation and practical trials.*]

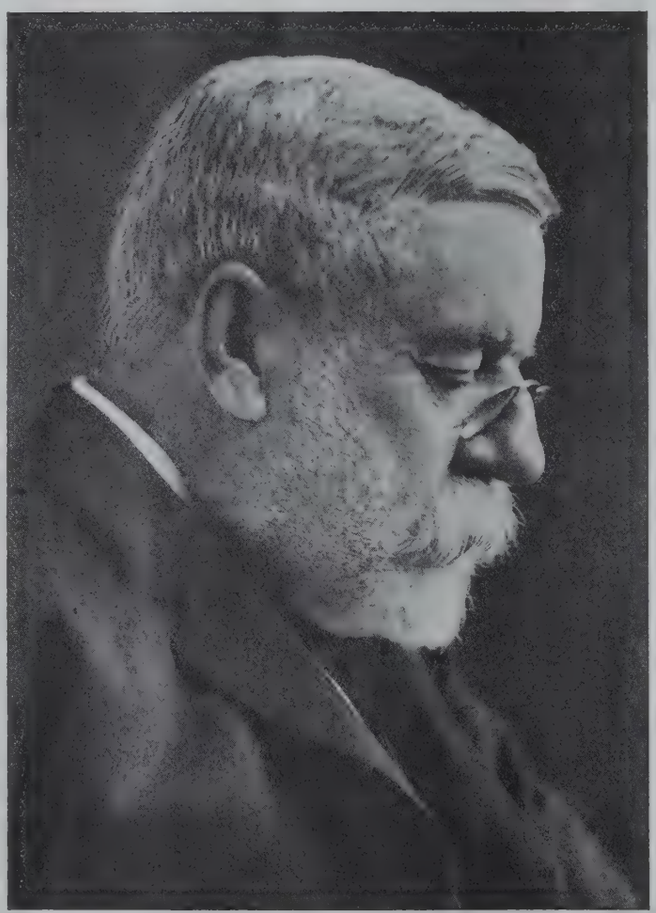
I NEVER can visit the Arnold Arboretum, at Jamaica Plain, Boston, without being lost in wonderment and admiration. Do you love trees and shrubs and yet do not journey thither you have something to live for.

In this wonderful museum of woody plants you will find practically every hardy tree and shrub from every corner of the globe, not only arranged as a collection for intimate study but set out in acres of beautiful park — trees and shrubs planted as nature intended in their natural settings. Dr. Charles S. Sargent, who planted them has proved himself to be one of the greatest of landscape gardeners for he has so used his material that really it does not matter at what season of the year we visit the Arboretum there is always something of interest, even in the depths of winter with the snow on the ground. What is more beautiful than the winter scene of Hemlock Hill with the Kalmias and Rhododendrons growing at its base and in the distance the grays and deep greens of the Spruces, Pines, and Firs.

My visits to the Arboretum are many, but every time I go there I am impressed by its beauty and charm and always find something new to interest me. Perhaps the time that most appeals to me is in May when the Crabapples, Cherries, and Flowering Pears are in bloom. Have you really ever seen them in their glory? If you have not, it does not make any difference what part of the United States, or I might even say what part of the world you live in, a trip to Boston would well repay you for the trouble and expense.

Indeed, it is a great pity the Arnold Arboretum is not better known, for it is doing a national work in its benefits to landscape gardeners and nurserymen of the country. Here new discoveries are tested for hardiness with the acknowledged "hardy" things of the world and as I wander around the delightful roads and paths I wonder why the park is not crowded with those who love the beautiful that God has created to fill this sad but wonderful world.

The purpose of the Arnold Arboretum is to collect and test every tree or shrub as to its hardiness and value for America. Trees and shrubs are often tested here that come from much warmer climates and it is interesting to note that many things from southern localities prove hardy.



Professor Charles Sprague Sargent, Creator and Director of the Arnold Arboretum, to whose foresight, ability, and untiring energy horticulture owes an untiring debt

Large sums of money have been expended in the work of exploration and research, sending out plant collectors to every part of the world where there is any chance of procuring new material. At the present moment Mr. E. H. Wilson, one of the most renowned and best informed of plant explorers, whose name is not unfamiliar to GARDEN MAGAZINE readers, is in Korea, collecting seeds and material for the museum, and he will doubtless bring back many interesting things, up to the present time unknown. In 1914 Mr. Wilson spent nearly a year in Japan making a collection of the wonderful Flowering Cherries for which that country is justly famed, and brought back more than seventy varieties of this beautiful tree, that have been added to the collections of the Arboretum, and may be seen growing there.

Here can be studied with intelligence the habit and growth of every hardy tree and shrub. Many of the specimens now more than forty years old were grown from seed sown on the spot, so it is comparatively easy to determine the actual merits of the species as to the habit of growth, position in which it will flourish, and its value from every standpoint.

One point that impresses me on my many visits is the quantity of beautiful and valuable shrubs and trees growing here that are practically unknown in private gardens and which for lack of the nurserymen's initiative can be found in hardly any nurseries. Perhaps one day horticultural America will awake. I hope so indeed.

In future articles I will try to tell something about many of the more attractive and interesting plants judged from a garden view point.

Driveway in the Arnold Arboretum along the foot of the far famed Hemlock Hill, a natural woodland fringed at the base with Kalmias and Rhododendrons in a rich variety

The Arnold Arboretum in winter. Practically the same view as above but taken a litt e to the left to get the evergreen foliage and the snow

THE PATRIOTIC GARDEN

FOOD F·O·B THE KITCHEN DOOR

EAT·FRUIT·AND·SAVE·SUGAR

EAT·NUTS·AND·SAVE·FAT

The Biggest "Victory Gardens" Year Ahead

By CHARLES LATHROP PACK, President, National War Garden Commission

"WE HAVE not yet begun to fight!" will be the New Year message of the home food producers of America to the world.

As they turn the corner into 1919 the garden patriots of the United States, who accomplished so much in the first year after this country was in the war and again in the past season of 1918, will find that *their biggest year is ahead.* The world will need more food during the next twelve months than ever before. The War Gardens of 1918 must be the Victory Gardens of 1919. They must help to complete the victory which our arms have begun. There must be no let down but instead an increased effort to supply the demands of a hungry world. Food reserves will be short for years to come and reconstruction work will call for industrial and economic labors on a stupendous scale compared with which some of the vast tasks carried out during the war will seem relatively easy.

MORE and more there has been a calling of workers into the mills and factories of the country. This has included women as well as men; and hundreds of thousands of women have gone into manufacturing, mechanical and mercantile pursuits. In some cities of the United States alone this has run up into the tens of thousands. In addition to the enormous numbers taken by the various drafts there has been a heavy and steady drain away from the food production fields of the country to the industrial centres. This places an extra burden on the sources of food supply which even with improved machinery and methods they are not able to meet to the full. Home gardens in city, town, and village must make up the deficit.

The problem of feeding all these workers at home is a big one. They cannot maintain their strength and perform their duties unless they are well nourished. But a still bigger problem is that of supplying the growing demands of the millions on the other side of the ocean who have been relased from the thrall of hunger and starvation which they have been facing for three or four years past. They have been living on scant diet, barely enough to sustain life, for a long period. Their own supply is exhausted. They must depend on the rest of the world, and largely on the United States, to furnish the food which has so long been denied them. It will be years—five to ten—before they can regain what they have lost during the war, before their business and their industry can be reorganized and before they can take a large part in helping to raise their own food. Food, therefore, will be the big problem of the world for years to come.

ALL parts of the globe are being ransacked in an effort to find new sources of supply and food which will fill the deficit. Plans for shipping are being adjusted with this thought in mind. Franklin K. Lane, Secretary of the Interior, has been working on a broad national scheme looking to the placing of large numbers of returned soldiers on new land which can be developed. It is probable that international arrangements in regard to the purchase and distribution of food supplies will continue for a long period after the close of the war. These and other plans which are being discussed to meet and solve the serious situation, show how vital to the world's welfare and of how long duration will be the food question.

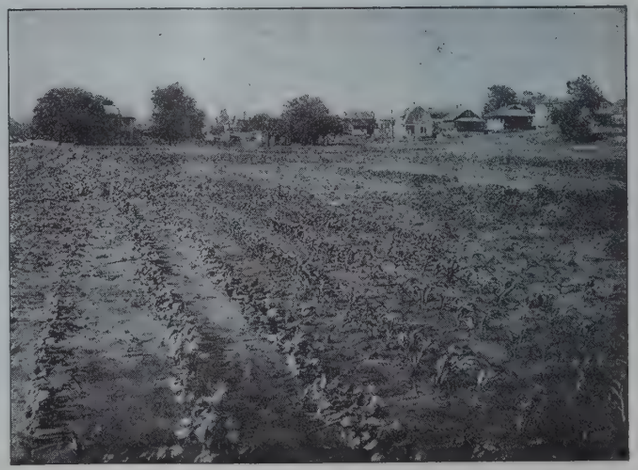
Irene McMahon of Missoula, Mont., who much to her surprise carried off the garden prize in her city. Then she won a canning prize and was awarded a National Capital Prize Certificate by the National War Garden Commission which was still a greater surprise. If you want to know the joy of gardening for the first time just ask this little Miss

IN this work the Victory Gardener will be a big factor. His importance cannot be overestimated. His duty to the world is clear. He must continue to produce large quantities of "Food F. O. B. the Kitchen Door." Millions are depending on him for part of their daily bread. Without his help millions of them will starve and other millions go hungry. There have been famines of peace as well as famines of war. In normal times they did not make the headway and devastate as large portions of the world as might easily be the case when reserve stocks have been practically, if not entirely, exhausted for months or years. It is necessary, therefore, to make every garden count in the days to come. The motto of every home food producer in the United States in 1919 should be: "I will make my vegetable plot a Victory Garden to help feed the world."

Ten million citizens of Belgium and Northern France, few of whom have had a square meal since the German occupation in 1914, must be given bread and meat. These victims of German oppression must have sufficient nourishment in order that they may rebuild their factories and their shell-torn cities and restore their ruined farms. Without help from the United States they cannot do this. There are other millions throughout Europe and Asia who also look to these shores with eager, outstretched hands, praying for the food they need.

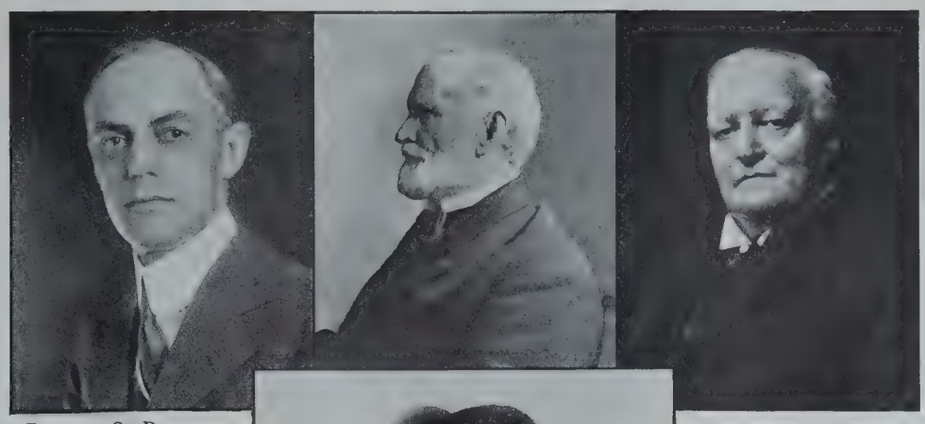
Victory gardening in the United States in 1919,

What was accomplished by the Garden Clubs throughout the country can never be visualized; but this from Minneapolis is typical



Every hillside put to work that the American Rolling Mill Company of Middletown, Ohio, could find. War Gardens are planted and cultivated by the workers of the Armco Plant

therefore, should exceed by a big margin the "war gardening" of 1918 and of 1917. The need for food was great then. Its needs next year will be even greater. There should be more gardens and they should be more productive. The National War Garden Commission found very little "slacker land" in our cities and towns last season. There was scarcely a community anywhere that did not have a relatively large proportion of war gardens. They were everywhere. You could not put your finger down on the map without touching a town that could boast of its fine gardens. The estimate of the Commission, based on a careful nation-wide survey, showed that there were 5,285,000 war gardens. Next year there should be a larger number of Victory Gardens. Every city should strive to outdo its record. Many cities which set out in the spring of 1918 to have a certain number of back yard and vacant lot "munition plants" surpassed the figure set, just as they did in the Liberty Loan, Red Cross, Y. M. C. A., and other drives. Let the motto be: "Double the Gardens." Follow Emerson's advice and "hitch your wagon to a star." Then when the returns are in at the end of the next season it will be found that the American people have planted 8,000,000 or 10,000,000 Victory Gardens instead of 5,000,000. This will be a record to be proud of.



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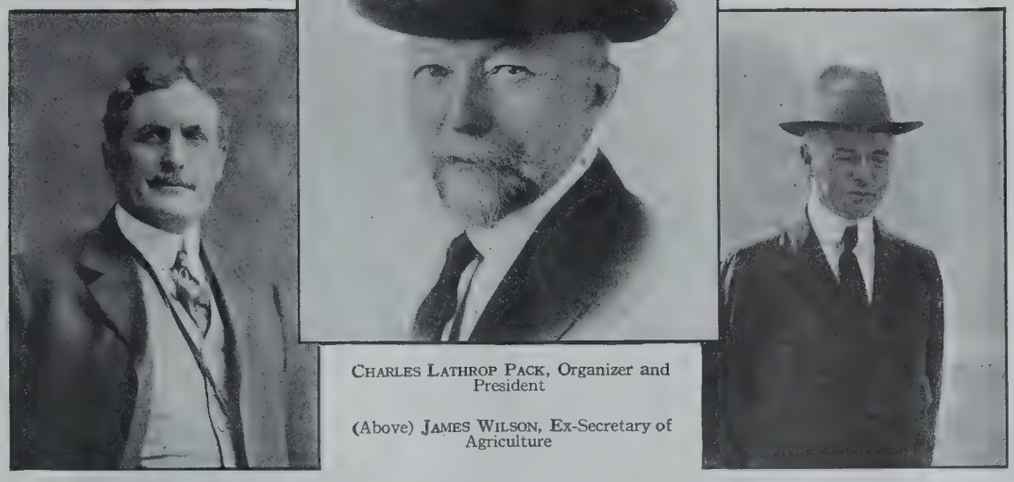


CHARLES LATHROP PACK, Organizer and President

(Above) JAMES WILSON, Ex-Secretary of Agriculture

All these gentlemen are active in the National War Garden Commission which has so thoroughly made good

Plan now for 1919 in a garden way; and plan big. That is the best advice to the Victory Gardeners of the United States. Plan early by studying out methods which will increase your area and the amount of your product. Every square foot counts; and thousands of them put together make acres. Perhaps your past experience or your study has shown how you can make two onions grow where only one grew before. The more food you can raise, the better. It will be found that much early planning is worth while. A young officer once asked his commanding general what he considered the most important principle in military tactics. "Study your ground!" was the instantaneous reply. That applies to gardening as much as to a military campaign. Every Victory Gardener in the United States, therefore, should sit down with paper and pencil and carefully figure out just how he can plant his garden to obtain the maximum results. That is what the nation and the world wants next year—"maximum results." Let no one be satisfied with anything less. After reading a letter like the following no one should be satisfied with anything less. It is from Mrs. Robert C. Thompson, of East Norwalk, Conn., to the National War Garden Commission. There was a service star at the top of the letter which reads:

"Will you send me your book on canning and drying? I have a small garden and want very much to preserve all surplus vegetables and save a little for the coming day. I have two sons, all the children that I have, at the Front and I must do all that I can to help our boys who are fighting in a just and right cause."

No further word should be necessary to make every man, woman and child in the United States who has a bit of land which he can cultivate, do the utmost to make it yield every possible pound of food.

SOME of the marvelous accomplishments of the United States, its stupendous task in preparing, equipping and maintaining overseas an army of millions, already is well known to the American public. More of these achievements will be revealed in the months and years to come. When all is told it will be a story which the nation will cherish as long as freedom lasts. The home food producers will want a part in this wonderful account. Already they have performed a most important patriotic service. What they have done entitles them to the world's lasting praise. But they will not be satisfied until they have done their all, until they have added to their laurels won in their war gardens the palm which will be bestowed upon them for excellence in their Victory Gardens.

Food! Food! Food! That is the big question. And this is what the officials of the Texas Portland Cement Company think of its importance

"The Furrows of Freedom" are just as important as the "Frontier of Freedom." "Outpost" of the General Electric Company at Schenectady, N. Y.

Vere McGowan who won first place with his Hubbard squashes in Polk County, Oregon. Puzzle—find Vere

Making the CHRISTMAS Dollar Buy a Dollar's Worth

Plants That Will Stand House Conditions

F. F. ROCKWELL

FOR a long service and ease of culture, there is, after all, nothing much more satisfactory than the old favorite Oxalis where a flowering basket plant is wanted. Here is a suggestion—buy a dozen bulbs of one of the large flowering varieties and start them in humus or fibre in a hanging basket, or bulb pan. They will not be in bloom by Christmas, but will be nicely started and during the early spring months will give a continuous supply of bloom.

Particularly Christmasy in appearance, for a non-flowering hanging basket plant, are the "asparagus ferns" plumosus and Sprengerii. Few plants are better for the house than these, and they will remain in good condition throughout the year and will continue to make quite a growth for several years to come.

How About Azaleas This Year?

AZALEAS, of course, have been one of the standard plants for use as Christmas gifts for many years. This year, however, owing to the war, they will be few and far between. There are still a few being imported, but, of course, the number is limited. The biggest trouble with Azaleas is that most people will *not* give them water enough during the flowering period, nor a cool enough temperature. The most satisfactory plant to use in place of an Azalea is a large sized Cyclamen just coming into bloom. The Cyclamen is a cool-temperature plant, and, if anything, better than the Azalea for the average house conditions. And then there are the Primroses, so well known that no description is necessary.

Palms and Ferns

PALMS will be plentiful this season. But in buying, one should be careful to select only those kinds capable of withstanding ordinary house temperatures. The Kentias, Latania, and Phoenix Roebelenii are, on the whole, the most satisfactory. The last being much more decorative and graceful in appearance than the others. Its many good points make it, all things considered, the best of all Palms for the house.

Ferns will be in good supply this year, as they have been replacing many warmer temperature plants. But stick to the safe kinds in making any purchases for house use. The Maidenhairs and other tender varieties will not make satisfactory Christmas gifts no matter how charming they may look in the florist's window. One of the many types developed from the older "Boston" fern will be the most satisfactory for growing in the living room.

No selection of Christmas plants will be quite complete without some mention of Ficus elastica—better known as the Rubber plant. This has not the quality of novelty, it is true. But it has so many other good qualities, that it is always a "safe bet." And one is not restricted to the common variety, as the "fiddle leaved" (Ficus pandurata), which is quite distinct from the other in appearance, is now generally obtainable.

ANYBODY contemplating the use of plants for Christmas gifts, may rest assured that they will be received as gladly as ever. Nor are the prices for this class of plants as high as might be expected as the result of the order allowing greenhouses a limited amount of coal. With some classes of plants, in fact, the result has been just the opposite, because growers have sold to dealers very liberally to avoid having too much to carry through the winter.

In selecting gift plants for the present time, one should look for the things which are

1. *Hardy enough to stand house conditions*
2. *Resistant to dust and dry atmosphere.*
3. *Having a long season and preferably, remaining throughout the year or capable of flowering again next season.*

It is by no means impossible to select plants that will fulfill these conditions.

In addition to selecting the right kind of a plant, attention should also be given to the individual specimen. Many people make the mistake of judging by size alone. A young plant, in active thrifty growth, recently potted up—but having been potted up long enough to have become thoroughly established—will give very much more satisfaction than a large, old plant which, though still in good condition, may have ceased active growth. What are known as "made up" plants—that is several small plants in one pot, to give the appearance of a very, large thrifty plant—are usually not as satisfactory as single plants. If the plant wanted is a flowering kind, take care to get a specimen which is just *beginning to come into bloom.* It will not only carry better and arrive in much more perfect condition, but the plant itself will withstand the shock of being moved about and being set in place in a new environment better if it has not yet come into full bloom.

If you would have plants in your home, give them a little thoughtful care. Direct sunshine, fresh pure air, and ventilation really are essential. Of course some plants are sturdier than others

Room for Personal Preferences

WHAT are the plants that best comply with the requirements? A few have already been suggested; but they by no means exhaust the list. Indeed there are several plants which comply more or less with the conditions; but which will be the best to select in any particular case, will, of course, depend both upon circumstances and personal taste. To take the question of *hardiness* first, if one wants something to withstand the most adverse conditions, something which almost literally "can't be killed," under ordinary treatment, nothing is better than the old, but not universally known, Aspidistra. While not as picturesquely graceful as some of the Palms, nevertheless its long, smooth leaves springing from the soil, and attaining a length of two feet or so, give it a somewhat tropical appearance, and a very decorative effect.

While the green Aspidistra is the one most popularly known, the form with variegated leaves, is a little brighter in appearance. In addition to its other good qualities, the Aspidistra increases very readily by simply dividing the old roots and re-potting or re-planting.

A Christmas Tree for All the Year Around

ONE of the most beautiful of all the Christmas plants and general house plants, the Norfolk Pine (Araucaria), will be hard to get this year—but, for that reason, especially prized. In taking care of this plant, most people make the mistake, because it is offered at the holiday season with a lot of tender, hot-house plants, of assuming that it requires a very high temperature. Quite the contrary is true, a cool, even temperature being what is needed, with very little water during the winter months when growth is nearly dormant.

Cherries for Christmas Morning!

THERE is one old favorite that has been out of favor in some quarters lately, because it was considered too plebeian, and that is the good old Jerusalem Cherry—which, in fact, is not a cherry but a scarlet fruited Solanum or Pepper. A well grown plant, with its bright, glossy green foliage, loaded with its small, scarlet fruits is about as appropriate for a decorative plant for Christmas as anything that could well be imagined. And, it will retain its attractiveness, not for a few days only, but for many weeks. A moderate temperature, and only enough water to keep the ground moist during the winter months, and a pruning back into shape in the spring when the plant can be set out of doors, and plunged into the soil, will put it into fine condition for a grand show next season.

Red Berries Around the Year

IF YOU want the cheery combination of bright red berries and clean, green foliage, another excellent plant is Ardisia crenulata, which has no fitting popular name. And, as the brilliantly colored berries remain on the plant for a long time, in fact until the succeeding crop has developed, it is always highly decorative. While the Ardisia is not quite as tough and will not withstand the dry heat and dust so well as the other plants mentioned, under ordinarily good care it will be wholly satisfactory.

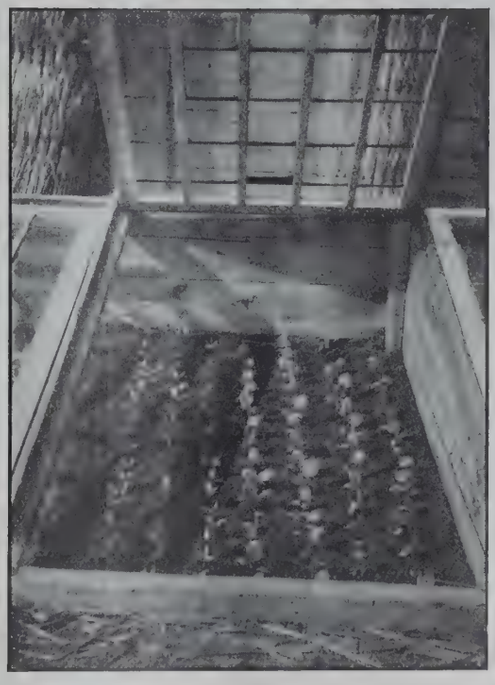
The Best Plants for Hanging Baskets

IN MANY situations, a hanging basket is more desirable than a regular potted plant. This year the Lorraine Begonia will not be much in evidence. But Gloire de Chatelaine, Glory of Cincinnati, Christmas Red, Prima Donna, and Mrs. J. A. Peterson are all excellent house varieties.

DIVIDEND INSURANCE.—Garden dividends are only possible when the soil is rich and fertile. Manure is one of our very best soil builders and like wine, it improves with age. Get it into the garden now and it will be improved ten fold by spring. Decayed leaves form an excellent soil builder.

KEEPING THEM GROWING.—Vegetables of all kinds growing in frames need good cultivation. This is even more necessary with coldframes than with frames that are heated, as growing conditions in coldframes are poor because of lack of proper ventilation, thus causing the soil to become sour and sluggish

FRAMES FOR MELONS.—Good melons are hardly possible without the aid of frames. The ideal frame for this purpose is about two feet square, twelve inches high in front and fifteen inches in the back. Now is the logical time to buy or build some frames for your next year's garden



BEATING THE SUN.—Sow seeds of all the more hardy types of vegetables such as cabbage, cauliflower, onions, etc., to carry over the winter in the frames. Give thorough protection during severe weather. Very sturdy plants with an enormous root system will be available in early spring

GATHERING BEAN POLES.—Why not take the kiddies to the woods and collect some poles and brush for next year? Remember that bush limas are not as productive as the pole type, nor dwarf peas as productive as the tall

THE GARDEN MOVIES, No. 12

Photographs and legends by W. C. McCollom

Not much insistent action, 'tis true, but much opportunity to get things well in hand for the spring opening. Foresight is better than hindsight.

WINTER PRUNING is in order for all types of hardy trees and shrubs and fruit trees especially. But tender plants that are likely to winterkill, and spring flowering shrubs (that should be pruned immediately after flowering) must not be touched

ARE ALL successful gardeners looking ahead planning improvements? Why not start some garden improvements at this time. Dwarf fruits are distinctive and productive and the wire supports may be installed now. This is also an excellent time to erect fences.

KEEPING THEM CLEAN. Spray anything infested with scale of any kind at least twice before the growing season is resumed. Miscible oil sprays and lime-sulphur preparations are on the market under proprietary names. Cover all parts of the plant

The Plant Doctor in the Flower Garden

From Material Prepared by Dr. F. D. Heald, Professor of Plant Pathology, Washington State Agricultural College

[EDITOR'S NOTE: This is something new in the way of "spraying tables," covering both insects and disease of the ordinary plants of the garden. In all the multitude of books on the subject not one has in a handy form anything like as comprehensive a survey to fit the needs of the common garden flowers and ornamental plants. Many tables deal with fruit and vegetables pretty thoroughly, but are of little use about the flower beds, lawns, etc. To meet this need we have gathered the available matter in a way never before presented. Unfortunately, knowledge is still lacking about certain diseases, and so the reader will undoubtedly not find answers to all his questions (Larkspur "blacks" for instance). Very many troubles are "general" and are discussed as a group first of all. The reader should familiarize himself with them at the beginning, and then follow through the alphabetical list of plants for any special feature not covered by the "general" groups. The diseases of tree and shrubs generally (including those of Roses) have been omitted equally with those of vegetables and fruits available elsewhere. These can be presented at some later date if our readers want them.]

DESCRIPTION OF TROUBLE	NAME	CAUSE OF TROUBLE	REMEDY REFERENCE
GARDEN PLANTS IN GENERAL (*Insects*) (See also "red spider" and "white fly" under greenhouse insects			
Yellowish, dark-spotted worms (¼–¾ inch) spin webs over plants and skeletonize leaves	Garden web-worms	Loxostege moth	11, 29
Young plants cut off even with the surface of ground or little higher	Cut-worms	Various moths	37, 33
Leaf eating caterpillars not protected by web	Caterpillars	Various moths	11, 12
Foliage riddled with holes by a small (one-eighth inch) cream-colored beetle with striped wing covers	Pale-striped flea beetle	Systena taeniata var. blanda	5 with 11
Slate gray or shiny black beetles on leaves and flowers	Blinker beetles	Species of Meloidae	11, 12
Roots showing various enlargements with streaks or spots of internal dark tissue	Root-knot or nemaodes	Heterodera radicola	35
Plump white grubs feed on the roots and cause more or less injury	White grubs	Lachnosterna spp. (May beetles or June bugs)	30, 29
Seeds, germinating seeds and young seedlings injured or destroyed by slender, yellowish-brown shiny larvae	Wireworms	Elaterdiae (Various click beetles)	30, 29
Green or brownish caterpillars frequently moving in great numbers and devouring the vegetation in their path	Army worm	Various moths	39, 11 or 37, 33
Minute, brown or black, jumping beetles (one-twentieth—one-twelfth inch) eat small irregular holes (larvae feed on roots)	Flea-beetles	Epitrix cucumeris and others	5 (5–5–50) or add 11
GREENHOUSE PLANTS IN GENERAL (*Diseases*)			
White powdery growth covering leaves or stems	Powdery mildew	Sphaerotheca, Erysiphe	40
Seedlings drop over and die	Damping-off	Various fungi	3 or 4
Cuttings rot without rooting	Damping-off	Various fungi and bacteria	3 or 4
Black mold growing over surface of leaves	Black mold	Meliola spp.	Control white fly
GREENHOUSE PLANTS IN GENERAL (*Insects*)			
Minute, dark-bodied (one-fifteenth inch), or yellowish (one-twenty-fifth inch) insects working on under surface of leaves; no webs	Thrips or stigmonose	Heliothrips haemorrhoidalis, Thrips tabaci	18, 22
Very fine webs on under surface of leaves or over flower heads	"Red spider"	Tetranychus telarius	19, 17 or 10
Active, white-winged insects (one-tenth inch) working mostly on under side of leaves, causing yellowing	White flies	Aleurodes spp.	21
Slow-moving, soft-bodied bugs (one-sixth inch) covered with whitish powdery secretion	Mealy bugs	Pseudocscus spp.	15 or 21
Greenish or dark soft-bodied insects on leaves or succulent stems	Plant lice	Myzus persicae and others	18
Oblong, slate-gray (one-eighth–one-half inch) "bugs" with seven pairs of legs; roll up when disturbed	Sowbugs	Porcellio laevis	21, 37, 33,
Whitish caterpillar, with median green stripe (three-quarter inch) folds leaves or ties them together with silk	Greenhouse leaf-tier	Phylyctaenia ferrugalis	40 or 11
Active greenish or reddish caterpillars roll up leaves, fasten them with silk and feed within	Oblique-banded leaf-roller	Archips rosaceana	40 or 11
Buds of various plants eaten but no insects evident (Feeding done at night)	Climbing cut worms	Various moths	37
SEEDLINGS (*Disease*)			
Seedlings drop over, wilt and die; brown rotted areas on stem at about ground level	Damping-off	Rhizoctinia sp., Pythium debaryanum and other fungi	2, 32 (air-slaked)
(*Insects*) (See especially wireworms, cutworms and flea-beetle in Garden Plants)			
ASTER (*Diseases*)			
Wilting and death of plant, stem rotted at or below ground	Wilt or stem-rot	Fusarium sp. (Imperfect)	2, 3, 4, 28
Yellowing of leaves, followed by wilting and death; brown fungous threads on roots or basal part of stem	Root-rot	Rhizoctinia sp.	See carnation
Foliage yellowish, leaves more or less crinkled or puckered	Yellows	Non-parasitic	25
Orange-red spore dots on leaves—(Peridermium stage on Pines)	Rust	Colesporium souchi	5
AZALEA (*Diseases*)			
Brown spots on foliage	Leaf spot	Septoria azaleae	8, 12
Small, crowded, orange spore dots on under side of leaves	Rust	Pucciniastrum minimum	Not severe
BLUEGRASS (*Diseases*)			
Dark enlarged spurs replacing some of the seeds	Ergot	Claviceps sp.	36, 28
White powdery coating on the leaves	Powdery mildew	Erysiphe graminis	10, on shaded lawns
Reddish or black spore pustules on stem and leaves	Rust	Puccinia spp.	Not serious
Moldy coating around stem, parts above wilting (*Insects*)	Cat-tail fungus	Epichloe typhina	Not serious
The flower panicles wither before they have become fully expanded	Silver top (Mite)	Pediculopsis gramineum	27
CALLA (*Diseases*)			
Rotting near the surface and progressing up or down; affected tissue soft and watery	Soft rot	Bacillus aroidae	42 (corms); 28
Leaves spotted:			
Spots ashen gray with numerous black spore fruits	Leaf spot	Phyllosticta richardiae	7
Spots, dark and circular	Leaf spot	Cerospora richardiaecola	7
CANNA (*Diseases*)			
Leaves showing small, powdery, brown or orange spore-dots	Rust	Uredo cannae	Not serious
CARNATION (*Diseases*)			
Stem and roots showing brown fungous threads on their surface	Rhizoctinia	Rhizoctinia sp.	25, 3
Brown fungous threads absent	Wilt	Musarium sp.	2, 53
Flower buds rotting without opening or imperfectly opened and base of petals rotted; "seed-like" mites within	Bud-rot	Sporotrichum poae	26, 24, 33, 43;
Buds rotting without opening, producing a gray powdery mold	Bud-rot	Botrytis spp.	24, 33
Calyx split, flowers imperfect, but no rot	Split calyx	Non-parasitic	31
Circular spots bearing concentric rings of dark mold on leaves, stems and sometimes calyx	Fairy ring	Heterosporium echinulatum	Band calyx 24, 5, or 7
Spore-dots on leaves round or elongated parallel to the length of leaf, brown and powdery	Rust	Uromyces caryophyllinus	34, 43, 42; 43, 42 (Cuttings)
Leaf spots oblong, blanched or pinkish, bearing numerous central black spore fruits	Leaf spot	Septoria dianthi	34, 5, or 7
Leaf and stem spots ashen white with black mold in centre	Leaf spot	Alternaria dianthi	34, 5, 7, 43
Affected parts pale, studded with numerous, minute, black, spiny spore fruits	Anthracnose	Volutella dianthi	2 (Cuttings), 33
CHRYSANTHEMUM (*Diseases*)			
White powdery spots on green parts leaves spotted or blighted:	Powdery mildew	Erysiphe cichoracearum	10, 40
Large brown or black blotches, with indefinite border, often enlarging to include whole leaves	Leaf spots or blight	Septoria chrysanthemi; Cylindrosporium chrysanthemi	6, soap for sticker; 26
Spore dots brown, powdery (one-sixteenth—one-eighth inch); seriously affected curl and die	Rust	Puccinia chrysanthemi	36 (cuttings), 26 34
Ray flowers blighted, flowers imperfect	Ray blight	Assochyla chrysanthemi	5, 24
(*Insects*) (See also greenhouse insects,			
Minute grubs make irregular twisting mines within the leaves; infested plants disfigured and sickly	Chrysanthemum leaf miner	Phylomyza chrysanthemi	18, 1–400

REMEDIES IN DETAIL

THIS is a novel presentation of the recommended remedies. They are classified in groups and the reference numbers correspond to the figures in the accompanying table. Particular attention should be paid to general methods of control and sanitation through giving the plants conditions in which they can grow properly. Many of the pests and diseases are the direct results of improper environment.

Seed Treatment

1. FORMALDEHYDE STEEP. The seed is soaked or dipped in a solution of commercial formaldehyde or formalin (40 per cent. solution) in water for a definite length of time. The strength of the solution and the time it is allowed to act on the seed must be given most careful attention. One pint of commercial formaldehyde to 40 gallons of water (a "1 to 40 solution") is a common strength. Formalin solutions lose their strength quite rapidly on standing.

Soil Sterilization

2. SURFACE FIRING. (a) *Direct firing:* A layer of straw, brush, or other litter is spread over the seedbeds in the open and burned. In carrying out this treatment, the seedbeds should be prepared for planting before burning the litter, after which the ashes may be raked into the surface soil. The ground is then ready for planting, and the upper layers should be free from objectionable organisms.

(*b*) *Pan firing:* For this method a sheetiron pan, 3 by 9 feet, is employed. Support it over the bed to be sterilized and build a fire beneath. Next shovel the surface 6 inches of soil from the next 3 x 9 foot strip into the pan and heat for an hour. Return this soil to its original position and treat a similar area from the other side of the pan. Next move the pan on and continue the process.

3. STEAM STERILIZATION. (Adapted for greenhouse work or for beds in the open when live steam is available.)

(*a*) *The perforated-pipe method.* Permanent or movable perforated pipes may be arranged in greenhouse benches. A 2-inch main from a boiler furnishing 80 to 100 pounds pressure should be connected to a set of 1¼-inch pipes placed at a depth of 1 foot, spaced 12 to 18 inches apart and provided with one eighth to one fourth inch perforations every 6 to 12 inches. The initial cost of permanent pipes is high, but their operation requires little labor and they may be used for subirrigation if desired. Place the pipe in position and fill in the soil and fertilizer (except commercial fertilizer) and have the seedbed prepared as if for planting. Cover with canvas or tarpaulin and turn on the live steam for 1 to 2 hrs.

(*b*) *The inverted-pan method.* This has proved practical for extensive work in the open and has been successfully employed for the treatment of tobacco seedbeds. The apparatus consists of a sharp-edged, galvanized iron pan 6 to 10 feet and 6 inches deep, fitted with handles for convenience in moving, and provided with an intake for the attachment of a steel hose. In practise the pan is inverted over the soil to be sterilized and the edges forced into the ground to prevent the escape of steam which is then turned in. The temperature is maintained at 175 to 180 degrees F. for 1 to 2 hours. Successive areas may be treated in this way until the entire seedbed has been covered. In sterilizing seedbeds by steam, it should be borne in mind that lighter soils are more easily sterilized than heavy ones. Also that soils high in humus are liable to injury by over sterilization. Soils can be most efficiently sterilized when they contain a medium amount of water.

4. APPLICATION OF FUNGICIDE. This may be distributed (in solution) from a sprinkling can, a spray pump, or by one of the overhead watering systems. In all cases the ground should be spaded or plowed and put into shape for planting previous to the application of the fungicide.

(*a*) *Drenching with formaldehyde.* Apply a solution of commercial formaldehyde, 3 pints to 50 gallons of water, at the rate of seven eighths gallon to 9 square feet, cover with canvas for 24 hours and air for one week before seeding. Ground intended for early spring planting may be sterilized in the late fall if more convenient.

(*b*) *Sulphuric acid drench.* Apply three sixteenths ounce of commercial sulphuric acid (in water) per square foot of soil at the time of seeding. Possible injury to seedlings may be greatly reduced by abundant watering during the germination period. This method is especially applicable to the treatment of seedbeds used for growing Pines or other evergreens.

(*c*) *Sulphur.* Flowers of sulphur or sulphur flour may be broadcasted and then worked into the surface soil just before planting at the rate of 350 to 900 pounds per acre. This soil is of particular value in treating land badly infected with the organisms causing potato scab.

Spraying

5. BORDEAUX MIXTURE: Take Copper sulphate (bluestone), 4 pounds; Quicklime, 5 pounds; Water 50 gallons. Prepare stock solutions of both the copper sulphate and the lime of such strengths that each gallon will contain 1 to 2 pounds of one or the other of these substances. Protect from evaporation or dilution by rains, and always stir before using. Dissolve copper sulphate either by suspending it in a coarse bag in the water or by using hot water. In using the stock solutions, measure out the right amount of each to give the desired number of pounds of chemical and dilute with half the quantity of water in separate (wooden) vessels. The two diluted solutions should then be poured together through a copper sieve (about 20 meshes to the inch) to exclude small solid particles. Bordeaux should always be freshly made each time, as it becomes weak on standing. The mixture may be tested to see it does not contain an excess of copper by adding a few drops of a 10 per cent. solution of potassium ferro-cyanide (yellow prussiate of potash). If the drops make a brown sediment appear in the bordeaux, add more lime.

6. RESIN-BORDEAUX. Bordeaux, any strength, 48 gallons; Resin "sticker", 2 gallons. The resin "sticker" is made by melting

DESCRIPTION OF TROUBLE	NAME	CAUSE OF TROUBLE	REMEDY REFERENCE
CLEMATIS (*Disease*)			
Stem rotting at or near the ground level, top blighted	Stem rot	Asochyla clematidinia	23, to 26, 28
(*Insects*) (Also scale insects and two-spotted mite of citrus fruits;)			
COLUMBINE (*Diseases*)			
Large purplish blotches on the leaves	Leaf spot	Ascochyta sp.	5 or 7
Whitish coating on leaves, later with numerous black spore-fruits	Powdery mildew	Erysiphe polygoni	10
COSMOS (*Diseases*)			
Large purplish blotches at the lower nodes of stem	Stem-rot	Phylitinla sp.	26, 24
White powdery coating on leaves	Powdery mildew	Erysiphe cichoracearum	10 or 9
CYCLAMEN (*Diseases*)			
Leaf spots irregular, dark at first but turning light and showing concentric markings	Leaf spot	Phoma cyclamenae	26 and 5 or 7
Leaf spots circular, watery	Anthracnose	Glomerella rufomaculans, var. cyclaminis	26, 5 or 7
CYCLAMEN (*Insect.*) (See greenhouse insects)			
DAHLIA (*Diseases*)			
White powdery coating on leaves	Powdery mildew	Erysiphe polygoni	8, 9, 10
Flowers small, often drooping before opening, due to browning and wilting of flower stem	Phoma disease	Phoma dahliae	No treatment perfected
(*Insects*)			
(Also apple leaf-hopper; thrips, red spider, and iris white fly)			
Buds blasted by punctures of bugs (one-fifth inch) dull yellowish or greenish, mottled with reddish brown	Tarnished plant-bug	Lygus pratensis	18, when in nymph
Larva tunneling up and down inside the main stem	Stalk-borer		38
GERANIUM (*Diseases*)			
Leaves showing triangular blighted areas extending from the margin inward; also internal brown spots	Bacterial blight or spot	Pseudomonas erodii	33; avoid crowding
(*Insects*) (Mealy bugs, red spiders, aphids, and white flies, under greenhouse insects)			
GLADIOLUS (*Diseases*)			
Corms with black sunken rotted spots; leaf spots also produced—reddish-brown color the most common	Hard-rot	Septoria gladioli	24, 42, 30, 5
GOLDEN GLOW (*Disease*)			
White granular coating on the leaves	Powdery mildew	Erysiphe cichoracearum	8,10, 7
HOLLYHOCK (*Diseases*)			
Leaves show yellow to brown, much raised spore-dots	Rust	Puccinia malvacearum	23 and 24, (fall); 5 (spring)
Leaf spots angular, dark-bordered, centre ashen gray	Leaf spot	Cercospora althaeina	5, 7
Leaf spots circular, frequently breaking in the centre	Leaf spot	Phyllosticta althaeina	5, 7
Brown spots on leaf blades, leaf stalks and stems; on older parts, sunken and light yellow to black	Anthracnose	Colletotrichum malvarum	5, often
(*Insects*) (See also garden insects)			
Yellow, sickly looking foliage due to work of dark-green to deep-bluish-green insect (one-quarter inch) with bright blue markings on the head	Blue sharp-shooter	Tettigoniella circellata	18, with prsesure of 150-200 lbs.
HYDRANGEA (*Diseases*)			
Leaf spots large, rusty brown, sometimes blighting entire top	Leaf spot	Phyllosticta hydrangeae	5, 7, 8
Leaf spots small, white, with red or purple border	Leaf spot	Cercospora sp.	5, 5, 8
Orange-colored, powdery spore-dots on lower surface of leaves; later angular, reddish brown spore-dots on upper surface, but not powdery	Rust	Pucciniastrum hydrangeae	Rarely severe
IRIS (*Diseases*)			
Elliptical, brown, yellow-bordered spots on the leaves	Leaf spot or blight	Heterosporium gracile	23, 24, in late fall; 5, 8
Dusty or powdery, reddish spore-dots on the leaves	Rust	Puccinia iridis	Not severe
Rhizomes or roots self-rotted	Root-stock rot	(Bacterial rot)	25
(*Insects*)			
Small, white-winged active insects cause yellowing of leaves or smutting (black mold in honey dew)	White fly	Aleyrodes spiraeiodes	26 (entire tops)
IVY, BOSTON (Leaf spot of Grape creeper and white fly)			
IVY, ENGLISH (*Diseases*)			
Leaves with large, irregular spots, grayish-brown above, brown below	Leaf spot	Ramularia hedericola	5, 7, or 8 if away from painted structures
Leaves showing dark brown, extended, dead areas, with many black spore-fruits, frequently in circular zones	Leaf blight	Phyllosticta concentrica	
Leaves with brown, raised, definitely bordered spots, terminal or central	Anthracnose	Colletotrichum gloesporioides, var. hederae	
(*Insects*) (Mealy bugs, white fly, and scale under Garden Insects; also bean aphis)			
MATRIMONY VINE (*Disease*)			
Dense, white, powdery coating on the leaves	Powdery mildew	Sphaerotheca sp.	7 or 10
MIGNONETTE (*Disease*)			
Pale leaf spots with yellowish or brown borders, but uniform brown when older	Leaf spot	Cercospora resedae	7 or 10
(*Insects*) (Corn ear-worm; imported cabbage worm; and two-spotted mite or "red spider" in greenhouse)			
NASTURTIUM (*Disease*)			
Leaves become yellow, wilt and die; stems with dark vascular strands	Wilt	Bacillus solanacearum	28, control insects
(*Insects*) (See bean aphis and thrips under bean insects; imported cabbage worm under cabbage)			
Long, winding mines in leaves made by yellowish maggot (one-eighth inch)	Serpentine leaf-miner	Agromyza pusilla	18, (91-400)
OLEANDER (*Diseases*)			
Irregular galls or swellings on stem and twigs	Twig-gall or tuberculosis	Bacillus savastanoi	26
Dead spots on leaves	Leaf spot	Macrosporium nerium	Not serious
(*Insects*) (See scale insects and mealy bugs under Garden and general greenhouse insects)			
Plant lice on tender shoots, yellow or yellow with black spots	Oleander or milkweed aphis	Aphis nerii	18
Foliage eaten by a metallic blue beetle (three-eighths inch long)	Blue milkweed beetles	Chrysochus cobaltinus	11 or 12 when beetles appear
PALM (*Diseases*)			
Leaves showing small or large dead brown spots, generally more or less circular:			
Minute fungous fruits or spore-tufts present	Leaf spots	Various fungi	7 if severe
Fungous fruits absent at first (Some molds may show later)	Sun scald (In greenhouse)	Sun shining through water drops	
Leaves with small circular raised spore-dots which suggest scale insects	Palm smut or scale spot	Graphiola phoenicis	7, 5, or 8, or F in open
(*Insects*) (General greenhouse insects; scales and mealy bugs)			
PANSY (*Diseases*)			
Dead, black-bordered spots on leaves and petals	Anthracnose	Colletotrichum viola-tricoloris	5
Plants wilt and die; stem rotted at or near ground level	Stem-rot	Fusarium violae	30, 31
Brown, powdery spore-dots on leaves and other green parts	Rust	Puccinia violae	25
(*Insects*) ("red spider" especially)			

5 pounds resin with 1 pint fish oil, cooling slightly and adding 1 pound soda lye while stirring. The mixture should be diluted with 5 gallons of water. The "sticker" makes the bordeaux stick better and is needed in spraying plants having a smooth surface.

7. AMMONIATED COPPER CARBONATE. Copper carbonate, 5 ounces; Ammonia (26 degrees Beaume), 3 pints; Water, 50 gallons. Dilute the ammonia with about 12 pints of water and use just enough to dissolve the copper carbonate. The strong solution may then be diluted to the proper volume. It should be used very soon after preparation. Not as good as bordeaux but may be used when the sediment or stains from that are objectionable, as in late sprayings of small fruits.

8. LIME-SULPHUR. Home boiled or factory boiled or commercial lime-sulphur is an insecticide as well as a fungicide. It is very extensively used in place of bordeaux for fungous diseases since it is less likely to cause burning or russeting. The home boiled article may be made according to the following formula: Sulphur, 1 to 1¼ pounds; Fresh stone lime, ½ pound; Water, ½ gallon. (1) Slake the lime in the cooker. (2) Add the sulphur and water. (3) Boil briskly till the sulphur is dissolved (about 45 minutes) stirring continuously and keeping the cooker covered; as it boils down keep adding water. (4) When finished let settle. (5) Use only the clear liquid, which may be stored if kept from the air. Prepared in this way lime sulphur should give a hydrometer reading of about 26 degrees Beaume, somewhat weaker than the factory made product. [The commercial preparations ready made, and merely needing dilution will be found most convenient, especially when only small quantities are needed.—ED.]

9. POTASSIUM SULPHIDE. Potassium sulphide, 3 to 5 ounces; Water, 10 gallons. Quite generally used for gooseberry and other mildews. Not as effective as lime-sulphur, but may be used if that shows any injurious effects.

10. SULPHUR. Flowers of sulphur or any brand of finely sublimed sulphur may be used as a dust spray. Sulphur dust has been recommended especially for grape powdery mildew, and may be tried for other powdery mildews also. It is effective for asparagus rust, and has recently been used with fair success in treatment of fungous diseases of apples and nursery stock. There are various commercial forms of sulphur such as "atomic sulphur," "sulphur paste," etc., which may be used as liquid sprays at the rate of 2 to 6 pounds to 50 gallons of water. These are valuable in mildew control.

11. ARSENATE OF LEAD. Arsenate of lead paste, 1 to 2 pounds; Water, 40 to 50 gallons. For newly hatched insects, it is not necessary to use it stronger than 1 to 50. For old or large insects, use 2 pounds to 50 gallons. Some more resistant forms may require 3 to 5 pounds to 50 gallons. First mix the paste with a small quantity of water, then dilute to the desired volume. Powdered arsenate of lead is about twice as strong as the paste, so 1 pound to 50 gallons is generally sufficient.

12. PARIS GREEN. The important compound in this insecticide is arsenious oxide and the commercial grades vary in strength. According to the Federal Insecticide Law, the standard is not less than 50 per cent. of arsenious oxide, and arsenic in water soluble form must not be present to the equivalent of more than 3½ per cent. of arsenious oxide. Paris green was for many years the standard arsenical, but on account of its scorching effect on foliage, has been very largely replaced by arsenate of lead. It may be applied either wet or dry. Mixing with bordeaux, lime, or an inert substance lessens the danger of foliage injury. (*a*) Dry or as dust spray: Paris green, 1 pound; Air slaked lime, gypsum, or flour, 25 to 50 pounds. (*b*) Wet or as liquid spray: Paris green, 1 pound; Fresh stone lime, 2 pounds; Water, 100 to 150 gallons. London purple, an arsenate of lime, was formerly used. Its arsenic content is more variable; it is liable to burn foliage, and consequently it has fallen into disuse.

13. KEROSENE EMULSION. This contact insecticide may be prepared as follows: ½ pound Fish oil soap (or 1 pound laundry soap); 2 gallons Kerosene; 1 gallon Water. Dissolve the soap in hot water, remove from fire and add the kerosene. Churn or pump mixture until creamy. Dilute as follows: (*a*) Dormant spray: 1 part to 5 to 7 parts water. (*b*) Summer spray: 1 part to 10 to 15 parts water. Foliage injury is likely in many crops and consequently tobacco preparations have come into more general use for plant lice. Crude oil may be used in the place of kerosene.

14. DISTILLATE EMULSION. 20 gallons Distillate (28 degrees Beaume); 30 pounds Whale oil soap; 12 gallons Water. Dissolve soap in water and boil. Add distillate and mix thoroughly while hot. For use add 1 gallon of stock to 20 gallons of water.

15. CARBOLIC ACID EMULSION. 40 pounds Whale oil soap; 5 pounds Crude carbolic acid; 40 gallons Water. Dissolve soap in hot water, add the carbolic acid and boil 20 minutes. For use add 1 gallon of the stock to 20 gallons of water.

16. MISCIBLE OILS. These are proprietary sprays and are concentrated oil emulsions intended primarily for use against San José scale. The dilution is 1 gallon to from 15 to 17 gallons of water.

17. WHALE OIL SOAP. This is more effective than ordinary soap. An excellent article may be prepared as follows: 6 pounds Caustic soda; 22 pounds Fish oil; ½ gallon Water. Dissolve the caustic soda in the water, then add the fish oil very gradually while stirring constantly and vigorously. Boiling is unnecessary, but the mixture should be stirred for about 20 minutes after the oil has been added.

18. NICOTINE. Use of "Black leaf 40" or other 40 per cent. nicotine preparation, 1 gallon; water, 800 to 1,600 gallons. Add 4 pounds of soap for each 100 gallons of spray. Dissolve the soap in hot water and add to the mixture to make it spread and stick better. When used with lime sulphur, the soap may be omitted. In some cases a stronger mixture is required, as for the Chrysanthemum leaf miner 1 part to 200 to 400.

19. WATER ONLY. Garden slugs may be knocked off by the jet from the hose and red spider is controlled by an adequate supply of moisture in the air.

20. DUST REPELLANTS. Certain small or soft bodied insects may be controlled by the use of inert dust repellants. Thus flour, air slaked lime, limoid, gypsum, etc., may be sprinkled on the plants. Such treatment is employed with success in early attacks upon seedlings in the garden.

Fumigation

21. HYDROCYANIC ACID GAS. This is a deadly poison produced by the action of sulphuric acid to which water has been added, on either potassium or sodium cyanide. Particulars may be had on application.

22. TOBACCO. Tobacco fumes may be used in the control of plant lice, thrips, mites, etc., on house or greenhouse plants. Foliage injury of tender plants may be avoided by burning the tobacco slowly or by the use of one of the several proprietary, volatile tobacco products now on the market.

Sanitary Measures

These are mainly in the nature of preventive steps, but oftentimes they deal with material already diseased or so weakened that it is easily subject to infection or injury. They are especially important in the control of diseases caused by organisms too small to be easily seen, and which the gardener is likely to overlook as important causes of trouble.

23. DESTRUCTION OF DEAD LEAVES in which the organism winters over. Such measures are never perfectly effective alone but are valuable in supplementing other methods of control, especially

DESCRIPTION OF TROUBLE	NAME	CAUSE OF TROUBLE	REMEDY REFERENCE
PINK (*Diseases*) (See also Carnation diseases)			
Raised blisters of spore-dots in concentric circles on leaves	Rust	Puccinia arenariae	25
(*Insects*) (All Carnation insects; greenhouse white fly and two-spotted mite in greenhouse)			
PEONY (*Diseases*)			
Leaves showing irregular brown blotches	Scab	Cladosporium paeoniae	7 or 8
Brown or grayish spots on stems, leaves and buds followed by the appearance of a grayish mold under moist conditions	Mold or Botryis disease	Botrytis paeoniae	26, 24, 5
PHLOX (*Diseases*)			
Brown spots on foliage	Leaf spot	Septoria divaricata	7 or 8
White powdery coating on the leaves	Powdery mildew	Erysiphe cichoracearum	10 (Liquid or dust)
(*Insects*)			
Holes in leaves	Flea beetle	See Garden Plants	5
PRIMROSE (*Diseases*) (See also gray mold under lettuce diseases)			
Well-defined, oval or circular, brown leaf spots bearing minute dark spore-fruits	Leaf spot	Phyllosticata primulicola, Ascochyta primulae	7, if severe
Leaf blotches yellow, centres ashy white	Leaf spot	Ramularia primulae	
Dark spore-fruits present in extended dead areas of leaf tissue; definite spot rather rare	Anthracnose	Colletotrichum primulae	ditto and as 26 also
(*Insects*) (See Fuller's rose beetle)			
SNAPDRAGON (*Diseases*)			
Spots on stem and leaves, dirty white with brown border; later black spore-fruits in the centre; leaves blighted or stems girdled	Anthracnose	Colletotrichum antirrhini	42, 23, 24, 33 34, 5,
Tips of shoots wilt and die	Blight	Phoma sp.	5
Brown, powdery spore-dots on leaves, stems and even seed pods; causes death and shriveling of leaves	Rust	Puccinia antirrhini	25 (infected plants); 30, 5. 8 (value uncertain)
(*Insects*) (green peach aphis)			
SUN FLOWER (*Diseases*)			
Brown or nearly black spore-dots on leaves which may curl, or die and fall	Rust	Puccinia helianthi	24 (All infected refuse)
White powdery coating on leaves and stems	Powdery mildew	Erysiphe cichoracearum	10
(*Insects*) (Common garden insects; corn ear-worm; Harlequin cabbage bug; blue sharpshooter of hollyhock; onion thrips; oblique-banded leaf-roller of apple insects; potato flea-beetle; and two-spotted mite of greenhouse)			
SWEET PEA (*Diseases*) (See also powdery mildew under pea diseases; Rhizoctonia disease under beans, potatoes, and other garden crops)			
Diseases affecting the aërial parts:			
Seedlings damp off, or older plants show white mold around collar and become yellow with later wilting and death; black seed-like bodies in or on the affected stems	Wilt	Sclerotinia libertiana	3
Leaves, stems, flowers or pods wilt or turn brown; minute fungous pustules abundant; disease progresses from young tips downward	Anthracnose	Glomelella cingulata	1 (5% for 5-60 min.) (Concentrated sulphuric acid for 5-15 min.)
Leaves dotted or mottled with yellow and frequently curled	Mosaic	Non-parasitic	Control. aphids
Stems show light reddish-brown to dark brown spots or streaks originating near ground but spreading to involve all other parts	Streak	Bacillus lathyri	3
Flower buds turn yellow and drop off	Bud drop	Non-parasitic, Excess of nitrogenous fertilizer	31 (In excess)
Diseases affecting the roots:			
Plants dwarfed and yellow; root system short, stubby and charred in appearance	Root-rot	Thielavia basicola	3
Roots rotting without above symptoms. Several types not separated except by microscopic characters	Root-rot	Fusarium lathyri. Chaetomium spirochaele	3
(*Insects*)			
Spots straw-colored or white with minute black spore-fruits	Leaf spot	Phyllosticta violae	5, 7, 8, if severe
Spots straw-colored or white, centres darkened by mold	Leaf spot	Cerospora violae	
Spots reddish (one sixteenth—one eighth inch) with more or less yellowing or intervening portions	Anthracnose	Marsonia violae	
Diseases produce indefinite spots or extended discolored or dead areas on the leaves:			
Advancing from the edge and blighting the whole leaf	Anthracnose	Gloeosporium violae	
Yellow patches on the upper surface becoming powdery below	Downy mildew	Pernospora violae	
TRUMPER CREEPER (*Diseases*)			
Leaf spots first purplish, later with grayish centre bearing minute fungous fruits	Leaf spot	Septoria tecomae	5
Diffuse, indefinite, brown or obvaceous coating on the lower surfaces of the leaves	Leaf mold	Cercospora sordida	5
(*Insects*) (See citrus white fly and general garden insects)			
VERBENA (*Disease*)			
Leaves covered with powdery coating	Powdery mildew	Erysiphe cichoracearum	9, 10
(*Insects*) (thrips, leaf-roller and two-spotted mite of greenhouse)			
VIOLET (*Diseases*) (Also Rhizoctinia disease under Carnation)			
Roots with grayish-black spots, not penetrating deep; the end of tap-root of seedlings destroyed or deformed	Thielavia root-rot	Thielavia basicola	If infected soil cannot be avoided, 28, 24, 2
Diseases producing more or less circular, definite bordered spots:			
Spots generally yellow with brown mold	Spot disease	Alternaria violae	23, 24, 25, 26
(*Insects*) (especially two-spotted greenhouse mite)			
VIRGINIA CREEPER (*Diseases*) (black-rot and powdery mildew of grape)			
(*Insects*) (See eight-spotted foresters, hawk moths, and leaf-hoppers under grape insects)			

in many leaf-spot diseases and in other troubles infesting the foliage of fruit trees or plants.

24. DESTRUCTION OF DEAD DÉBRIS in general—dead stems, leaves or fruits. In such troubles as white rust of oyster plant or downy mildew of the onion, the over-winter spores are set free by the breaking down of plant parts remaining on or in the ground. In the potato, the stalk-borer winters in the old, dead stems. Especially in truck gardens the general practise of cleaning up and burning all plant débris is a good one, and will lessen the damage from insects, pests, or fungous diseases.

25. REMOVAL AND DESTRUCTION OF WHOLE PLANTS. In some cases, especially of perennial crops, this is the only thing to do. The tree or plant may be hopelessly infested with an insect pest, or the fungous parasite may be both internal and perennial. This is illustrated in trees badly infested with shot-hole borer or by blackberries or raspberries affected with orange rust. The fire blight, a bacterial trouble, may be so severe as to call for equally drastic measures.

26. REMOVAL AND DESTRUCTION OF DISEASED (localized) PARTS. This should be done when the trouble is localized. Less severe types of fire blight infesting the twigs only may be treated in this manner, or the infested canes of small fruits like blackberry or raspberry, or the small branches of trees harboring borers or insect eggs may be pruned out and destroyed.

27. BURNING OF GRASS OR STUBBLE, not a practise to be generally recommended, but it may be employed in special cases. Ergot-infested meadows may be so treated, while the depredations of the chinch bugs, army worms locusts, and wheat joint-worms may be lessened in a similar manner.

28. AVOIDANCE OF INFECTED SOIL. Fields or gardens may become infected with soil fungi or insect pests that spend a part of their life buried in the ground or beneath soil débris. A number of the important troubles which may originate from infected soils are the Rhizoctinia disease of potatoes and other crops; the wilt diseases of cotton, potato, etc.; wire worms, root maggots, etc.

Planting and Cultural Practices

29. PLOWING. Deep plowing may be used to good advantage against some of the common, injurious insects which spend the winter on or in the soil or surface plant débris in either the egg, larva, pupa or adult stage. The life history of the pest must be understood in order to take proper advantage of this method. Grasshoppers' eggs which are laid on grass and stubble, if turned under to a depth of 5 or 6 inches, may hatch, but the young will be smothered without ever reaching the surface. Even adult insects may be buried and smothered. Insects which normally hibernate (spend the winter) below the surface may be exposed and devoured by birds or succumb to unfavorable weather conditions before establishing themselves in new winter quarters. This is why fall plowing is of value in the control of corn-stalk borer, wire worms, sugar-cane borer, corn-ear worm, cut worms, root maggots, etc.

30. CROP ROTATION. One of the principal reasons for disease is the existence of many fungi or insects in the soil, which increase in numbers or amount with the continuous growth of the same crop. Single cropping may thus increase the severity of a soil infection until the production of a paying crop is absolutely impossible. (See 28). This is true in the case of wilt diseases, potato scab, the rhizoctonia diseases, weevils of peas and beans.

31. AVOIDANCE OF CERTAIN FERTILIZERS which promote the severity of fungous or bacterial troubles. (*a*) Addition of lime increases severity of potato scab. (*b*) Barnyard manure also increases the severity of potato scab. (*c*) Nitrogenous fertilizers promote vigorous succulent tissue and so increase danger of pear fire blight.

32. USE OF CERTAIN FERTILIZERS. The application of lime to a rhizoctonia infected soil is of value since it produces an alkaline condition unfavorable to the fungus. Alfalfa failures may be due to acid soils which may be corrected by liming.

Control of Water Supply

33. REDUCE THE WATER USED IN IRRIGATION either by less frequent irrigations or by watering for shorter periods. Like the use of strong drink the use of irrigation water is intoxication, for the grower is stimulated by the response which plants make to plenty of water to use a little more. The result is that over-irrigation and over-growth are not uncommon. This is just the condition which favors a bacterial disease like fire-blight of apple and pear, increases the severity of powdery mildew of apple or wheat and aggravates such non-parasitic troubles as bitter rot of apple and winter injury of fruit trees in its various forms. An excess of moisture seems to be favorable for the increase of soil-infesting nematodes, and greenhouses that are kept especially damp are frequently overrun with sow bugs.

34. WATER THE SOIL, NOT THE PLANTS. In greenhouse crops spraying with a garden hose is a means of spreading certain fungous diseases. If rust appears in carnation beds the successful grower keeps it in check by watering with an open hose *between* rows. A disease like the late blight of celery may be spread and increases in severity by running the irrigation water down the rows, rather than between them.

Selection of Site

35. Avoid heavy poorly aërated soils which are especially favorable to certain bacterial diseases like black rot of cabbage and black-leg of potato and which predispose stone fruits to physiological gummosis.

Harvesting and Storage Practices

36. EARLY CUTTING is designed to interrupt the completion of the life cycle or, wherever possible, to prevent the development of the wintering stage of the parasite. Two notable illustrations among fungous diseases are leaf spot and downy mildew of alfalfa; the clover-seed midge may be partially controlled in a similar manner.

Special Devices

37. USE OF POISONED BAIT. (*a*) *Poisoned bran.* Wet 40 pounds of bran until the water can be squeezed out in the hand, then stir in 2 gallons of molasses and 5 pounds of white arsenic. Scatter in small piles in the pathway of the pests. (*b*) *Citric bran mash.* (1) Mix dry 50 pounds, wheat bran; 2½ pounds, white arsenic or Paris green; (2) Mix thoroughly ½ dozen Lemons, including rind, chopped fine, 4 quarts, Syrup of molasses; 5 gallons, Water. For use, mix 1 and 2 just before using and add sufficient water to make a wet mash. (*c*) *Slices* of carrot, raw potatoes or other vegetables may be rolled in Paris green and placed in the haunts of the pest.

38. BORERS may be killed by digging them out or by inserting a flexible wire into their burrows. Hand picking of beetles and throwing them into a pan of kerosene is sure but tedious.

39. THE USE OF BERRIES of some sort to prevent the advance or migration of insects, or occasionally of fungi is often effective. (*a*) *Banding* with some sticky material. (*b*) *Furrows or trenches.* Plowed furrows may be used to check the march of army worm, the retarded army being killed by spraying with strong contact insecticide.

40. PAINT sulphur and oil on steam pipes.

41. MECHANICAL DESTRUCTION OF PARASITES. Because of their large size and characteristic work, the larvae of the sphinx or hawk moths may be easily located, and gathered and destroyed or cut in two with a pair of scissors, wherever found. The egg masses of tussock moths, potato beetles, brown tail moths and others which are generally conspicuous, may also be located and destroyed. Brown tail and gypsy moth egg masses are effectually destroyed if painted with creosote

Seed Selection and Disease Resistant Varieties

42. THE USE OF DISEASE-FREE SEED OR STOCK. Certain of the seed-borne troubles can not be readily controlled by seed treatment; against these the selection of healthy seed or seed free from the germs of disease offers an avenue of escape. It is also equally important that all stock used for propagation such as cuttings, scions, bulbs, etc., be free from diseases or pests.

43. THE SELECTION OF RESISTANT VARIETIES OF SPECIES. The experience of growers and the results of experimental tests show that it is frequently possible to list varieties into resistant, susceptible, and very susceptible groups, and such lists have been published by experiment stations in connection with many of our important crops. A few of many possible examples may be cited: Durum varieties of wheat and the Kanred show a marked resistance to stem rust; Palmetto asparagus, a variety resistant to rust, has largely replaced the susceptible Conover's Colossal; English varieties of gooseberry are much more susceptible to mildew than the American; the Chinese and Japanese chestnuts are much more resistant to the bark diseases than the native American Chestnut.

What is a "Good" Strawberry?

SOME time ago, I read an article in the GARDEN MAGAZINE that told of Mr. Kevitt's successful planting as late as November 15th. Is not early August considered the most desirable date for Southern Massachusetts? For the large home garden where shipping qualities are not requisite what kinds of strawberries best comply with the conditions mentioned in "sweet and luscious and of aromatic flavor"?—*Edward S. Adams, Mass.*

—I, too, think most growers would be surprised at Mr. Kevitt's late planting date, but I saw the fruit and plants late in June, and the crop was certainly a good one. It would have been a good showing for any time of setting. But these were the strongest, well-rooted plants most skilfully set in the best of soil.

When it comes to naming "best" kinds of strawberries, it's much like selecting the "best girl" for some other fellow—it's risky business. There's no accounting for tastes, and this applies to strawberry plants as well as strawberry growers. No fruit is more finicky in its variations, and no other fruit is more local in its success and failures. A variety that is "best" in one locality or on one kind of soil or under one method of culture may be nearly worthless in others. For example, Chesapeake in form and color is ideal, and its quality is high. But the introducer, J. T. Lovett, says that it will not succeed on his sandy soil. I saw it on heavy soil years ago. Its appearance captivated my eye, its quality tickled my palate, and "I fell for it" at once, though it was then spoken of as a little weak in plant and a poor "plant maker." I tried this in a small way only to be repeatedly disappointed on my sandy soil. If I lived in Massachusetts, I certainly would test it. In fruit, it's one of the best I've ever seen.

A variety that is very popular up Boston way is Marshall, for it succeeds there; from my experience, I wouldn't say that it possesses all the strawberry graces, "sweet, luscious, aromatic," in highest degree. But it's worth trying. Wm. Belt is a berry worth while though its tendency to grow cartwheels doesn't suit some. But it's a strong grower, productive and of good quality. Nick Ohmer is another variety worth trying. For late, Gandy is good. Fendall is a good one in some localities. Some of the new hybrids may prove valuable, but time and many trials are necessary to demonstrate this. Try a few plants of Forward or Progressive "everbearing" varieties.

But best of all take a squint over the fence of your strawberry growing neighbor, whose soil and conditions are like your own. Try several varieties in a small way, including each year one of the newer kinds. This experimental work is more fun than the circus, and you may find a prize that combines all the desired qualities.—*F. H. V.*

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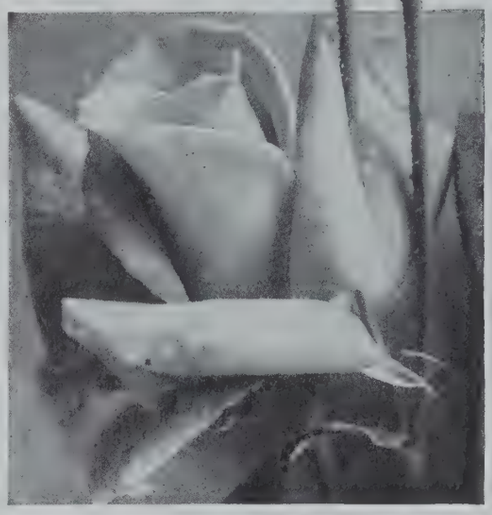

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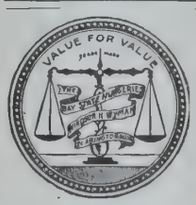

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THE MONTH'S REMINDER, DECEMBER, 1918

The purpose of the Reminder is to call to your attention the things which should be thought about or done during the next few weeks. For full details as to how to do the different things suggested, see the current or back issues of THE GARDEN MAGAZINE. *An index of contents is prepared for each completed volume, and is sent gratis on request. Prepare now for next year's garden.*

DO NOT stop fall work by the calender, but continue until everything is frozen up tight.

Taking advantage of the last week or two will enable you to "get the jump" on next year's work.

Prepare now for plowing or spading the vegetable garden as soon as frost is out next March. Is everything out of the ground? Oyster plants and parsnips can remain where grown, but it is better to take out and store or trench them.

Don't leave any refuse in the garden to get frozen in. If you haven't done the job already, remove pea brush, bean poles, old corn stalks, cabbage tops, vegetables that froze before maturing, and anything else that may be in the way next spring, or serve to protect or harbor insect eggs or disease germs during next winter. Make that part of the garden "clean as a whistle." Burn all the weeds and refuse. The clean flame is the only sure cure for any left-over which may be infected. Don't take a chance by putting it on the compost heap.

For safe and easy burning, make a cylinder of chicken wire or something a little heavier, if available, stand this on end, turn out the lower edge, and hold it in place with a few large stones or bricks and burn your rubbish in it.

Soil for Spring Use

IF YOU expect to start plants in the house early in the spring, get in a supply now of finely sifted garden loam, leaf mold and sand. You can do this work now in a half hour or an hour; while it may take several hours of hard work when the ground is frozen next spring.

Winter Mulch in the Flower Garden

THERE is no hurry about actually getting it on the ground, unless by the time you read this severely cold weather has already set in and the ground has frozen hard. Leaves or short, clean, dry manure make a good mulch material. A convenient way to hold it in place is to use short stakes and a border of 12-inch chicken wire to hold the mulching material in place where it would otherwise be likely to get scattered about the lawn or grounds or blow off.

Beds for Spring Planting

IF YOU are planning to make any new flower beds or a rose bed next spring, this is the last chance to do the work (if the ground hasn't frozen up yet.) The advantage of doing it now instead of waiting until spring is not only that there is more time but also that the job will be done much more thoroughly than it is likely to be done then, and the soil being prepared several months in advance will be in a very much better state than if fixed just before it is wanted for planting. Remove all soil for a distance of a few feet or so, carefully give the next six or eight inches of loam in the bottom a first breaking or loosening with a pick, if it is a hard clay sub-soil, and put in eight inches or so of coarse cinders. Then fill in with soil and manure to within half a foot or so of the top, and finish off with good, clean loam, heaping up slightly to allow for settling during the winter. If this work is done now, setting out your flowers or rose garden next spring will be the easiest kind of work—nothing to it but to add a little bone meal or fertilizer and to stick in the plants!

Flowers for Indoors

MOST of the hardy perennials will bloom early in a frame or even indoors if taken up and potted now, and started into growth in February or early March. Things of this kind, blooming weeks ahead of those outdoors will be much more appreciated than they ever were when flowering in the open. Simply take up carefully, put in generous sized pots with good drainage, water thoroughly, if the soil is dry, and store in a moist place or in a frame outside where they will not freeze too hard. An occasional touch of frost will not hurt them.

Pot up Cuttings Early

IF YOU are starting new plants from cuttings —and that is the quickest and the surest way to obtain a supply of most of the new things you may be interested in—take them out of the sand just as soon as the roots begin to be put out. But don't put 'em in big pots! The smaller the pots the better, at first. "Thumb" pots, or 2-inch pots are the best. Use light soil with a good proportion of sand in it, for the first potting. If only larger pots are available, put three or four cuttings around the edge of a four or five inch pot. Pot firmly; water thoroughly; then leave quite dry for a few days, and keep shaded from hot sun until growth starts.

Tricks of Weather

BE CAREFUL with watering, even if you have only a single frame. There is a simple rule to try to follow—water in such a way that the foliage and soil surface will be dried off by night. Keeping that in mind, you will be guided by circumstances. But remember also that the less frequently you have to water the better—and during the next few months comparatively little water is needed. Also that it is much easier to water a second time than to get soil that has been over-watered dried out again at this season of the year.

Read last month's GARDEN MAGAZINE for the routine of greenhouse management at this season.

Plants Inside the House

PLANTS which have been taken in for the winter window garden are likely to begin to show signs of trouble about this time. To keep them in good condition you must *do* three things:

1st.—Water frequently enough to keep the ground evenly moist, but never over-saturated or muddy.

2nd.—Give plenty of fresh air, and all the sunshine the variety needs (many things will do well without direct sunlight).

3d.—Spray, fumigate or dip the plants regularly in nicotine sulphate solution, to control aphis or other sucking insects, which cause ninety per cent. of plant insect troubles indoors other than those of air conditions.

Keep house plants well fed. Plants in pots soon exhaust the available food supply in the soil, if it is not replenished. There are several good complete plant foods for flowers, especially designed for house use. A teaspoonful or two of fine bone flour worked into each pot is excellent. A little diluted ammonia, applied when the soil is already moist, is also good. DO NOT use olive oil, castor oil, beef tea, or any similar concoction which you may chance to hear recommended or even see advised in print.

The Bulb Border

MANY bulbs have come in very late this year. If you did not order American grown stock—which by the way is proving to be in every way as good as the imported—you may still be waiting for some of the varieties that are usually in the ground by this time.

Get ready for planting, even if the bulbs are later than ever before. After the border is prepared, a mulch of straw or manure will keep it from freezing, so that you can plant as late as you please.

Warning! Do not put the mulch in place where bulbs have been planted until *after* the ground begins to freeze; it makes a harboring place for mice, which are likely to injure the bulbs, or the first growth in the spring.

Orchard and Small Fruits

TIME now to get the mulch on the strawberry bed, as the ground freezes up. A few pieces of board or small cord wood will be handy to help hold it in place, until settled by rain or snow so that it won't blow about.

Attend to the cane fruits, raspberries, blackberries, etc., now. Prune out all old wood, and cut the tall canes back a little. If left until spring this work is likely to be neglected in the push of other things.

Trenches for Next Year

SPADE up or trench the soil for next spring. Except where you have sown cover crops, spade up the ground this fall just before freezing weather. Do not rake off, but leave the ground rough and the sub-soil in lumps on the surface. In this way you can make valuable use of your sometime enemies frost and snow, as alternate freezing and thawing during the early spring will so disintegrate and pulverize the soil that it will be in prime condition for making a seed bed in the spring.

Put in the Winter's Celery

MOST of the celery which has been blanched out of doors for fall use will be exhausted this month and any heads left out of doors and banked up until now for holiday and winter use should now be put in the celery cellar or vegetable pits outside. Cover pits with hay or straw on the approach of hard freezing adding to the covering as cold weather increases sufficiently to protect the celery. For storing inside, use long, narrow boxes as deep as the celery is tall, leave soil on roots and pack in as tightly as the plants will comfortably go. If the soil is dry, wet slightly around the roots, but *leave the tops and stalks dry*. Growth will continue in storage.

Mulching and Feeding

AFTER the ground freezes, protect any fall plantings. Remember, this mulch also is not to keep things from freezing but to keep them frozen after they do freeze, and so prevent undue starts.

Wherever you have sown a cover crop, rye, or rye and vetch, to grow through the winter it is a good plan to use whatever manure or compost you may have on hand as a top dressing late in the fall. The rains and melting snows will wash this down to the roots, and you will get it all back again when you spade the cover crop under in the spring.

Greenhouse Fuel

LIGHTNING changes are the order of the day, and what is prohibited to-day may be legal by to-morrow! At all events the famous "50% fuel order" for greenhouses has been modified in part. As this is written the governing rule for private greenhouses in New York state permits the 50% of bituminous coal, "but under no circumstances are they to receive or be allowed to burn anthracite coal." All state fuel administrators have been instructed that "florists may burn bituminous coal, steam, anthracite, or coke breeze" without having such fuel apply on their quota, if in the opinion of the local administrators there is a surplus of such fuel "which can be spared." Or, in other words, greenhouses generally may *use* coal other than domestic anthracite sizes up to requirements *if they can get it!*

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December Planting in the South

PROTECTION against the disastrous effects of freezing and thawing, winds, snow and sleet is the important part of winter work for December. Newly planted trees and shrubs should be tied to at least two strong stakes, and before the ground freezes earth should be packed firmly about the roots. After the ground is frozen coarse manure can be put at the base of the Rose bushes and all newly planted trees and shrubs. Tie with soft twine all valuable evergreens to prevent the weight of snow from bending and breaking them. Tie up fig bushes and Hydrangeas with pine boughs or straw about them. Tuck in the plants snugly for the long winter's nap. Only tender Roses need much protection especially the standards and they can have straw tied around them. Others need only a mulch of loose, rotted manure.

Put coarse manure between the rows of spinach, but not on it, for when the warm days come in winter it is apt to burn.

Cover the celery bed with pine tags or straw held down by planks laid down in roof fashion in order to shed the rain and snow.

All root crops can be kept in kilns. (See December 1916 GARDEN MAGAZINE.) An unheated cellar is a better storage place for roots.

There should now be a good winter garden. Leeks, parsnips, salsify, and carrots remain where planted and are used as needed. There are turnip tops for greens as well as the upland cress that grows wild and these two mixed half and half make an excellent boiled salad.

Lettuce in the frames should be watered in the morning only and then only when needed. It does not require much water in winter. Give plenty of air every day by lifting the sash a little in heat of day, and closing in early afternoon.

Examine the orchard trees for San José scale, and spray with self-boiled lime-sulphur several times during the winter; also cut out dead limbs and those that crowd each other. Plant fruit and nut trees as long as the ground is not frozen nor too wet.

Plant the early flowering bulbs, such as Hyacinths, Tulips, Narcissus, and Crocus, and plant as deep as four times the size of the bulb. Do not cover heavily with manure or they will begin blooming the warm days of winter very likely, and get nipped by a sudden cold spell.

Calla Lilies, Hippeastrum and Amaryllis, that have been resting during the summer, should be watered from manure barrel, and brought into the Conservatory or Greenhouse.

Pansies and Daisies and Violets, although hardy and blooming out of doors in mild days, yet if protected from snow by having them in cold-frames, can be gathered more readily.

If the weather is open, strawberries and all small fruit, and asparagus, can be planted this month, but the ground should be loose and dry.

If Poppies, Sweet Alyssum, Mignonette, Forget-me-nots, Phlox Drummondi were not sowed in November, do so now if the weather is open and the ground unfrozen.

These will bloom the first warm days of spring. Forget-me-nots planted in among the wall-flowers are a lovely combination, and bloom as early as February.

Virginia. J. M. PATTERSON.

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UNCLE SAM'S GARDENING

A News Feature of National Current Activities

THE National Plant, Flower and Fruit Guild, of which Mrs. John Wood Stewart is president has again found how to do one of those extremely useful things which everyone wonders hadn't been done before. Just as last year their truck brought in the apples which the near-by farmers said were not worth marketing and sold them at a low price and in goodly quantity to those who wanted apples and hadn't been able to buy. This Guild saw the emptiness of the camp and started to remedy it:

"Whoever has visited a soldiers' camp, must depart with a feeling of pity that in this land of bounty we cannot offer our boys more cheerful, more attractive and more homelike surroundings. . . . It may not be the duty of the authorities—perhaps it is not pre-essential—but it is the duty of the folks at home to help in a movement which will express to our fighters our appreciation of what they are doing, and our desire to make their Camps a pleasant place to live in. . . . This Guild is calling for every man, woman, and child to join the army of camp Beautifiers—and see that every camp blossoms forth into a spot of beauty."

CAMP UPTON was the first to welcome this idea of the National Plant, Flower and Fruit Guild, and commanding officers of other camps have been warmly sympathetic. The Guild requested of the camp officer to appoint a committee composed of the permanent organizations of his camp—Y. M. C. A., Red Cross, Knights of Columbus, etc., whose duty would be to form a planting plan, prepare the ground, and see that the plants were properly set out and cared for.

Attractive posters have been distributed through likely centres, and the Guild's offer is catholic enough, "If any one knows places where these can do good and are wanted, send us word and we shall promptly do the rest."

The Guild's circular had a peculiarly strong appeal to gardeners—especially to intelligent and thrifty gardeners—it was a circular so very explicit and to the point—the idea being, "enlist your garden, give of your surplus, and the material will be abundant enough."

Again: "We do not wish you to rob your garden, nor to sacrifice any of the plants dear to your heart—but there is a way of making your garden do its bit, to the betterment of itself."

"No doubt you have Iris, Phloxes, Peonies, Larkspur and other hardy plants * * * which would prosper more if they were lifted and divided * * *

"And then you will find that your Hollyhocks have seeded themselves, and that you have hundreds of young plants growing * * *. We can use millions of Hollyhocks.

"And then you have some shrubs or bushes that have grown too large, or you have more Roses than you care for. We and the boys will be glad to have them.

"Have you sod to spare? We can use it by the thousands of yards. Of course we shall be grateful for even a small amount.

"Have you a cold frame? Why not sow some seeds of hardy plants such as Pansies, Forget-me-nots, Larkspur, Foxglove, Hollyhock, etc. We will be glad to have them next spring; and then we want your surplus of Dahlias, Cannas, Gladiolus, Lilies, or any other root which you keep through the winter and of which you always have more than you know what to do with. * * *

"* * * Prepare for next spring, and when you send your list to the seedsman get enough seeds so that you can spare us thousands of Asters, Zinnias, Marigolds, Calendula, Phlox Drummondi, Calliopsis, Petunias, or any other good annuals.

"We want those camps to be a riot of color next year.

"If you are not within driving distance of any camp, send to us your name and the name of your nearest camp, and we will send you a camp-garden label.

"Pack and ship the plants, and we will refund the money you pay for expressage or postage."

WHAT *gardener* could resist? According to the results very few resisted and as the fall closed the Camps bid fair to drop the wilderness, or rather desert, aspect, and to blossom like the Rose.

I venture the opinion that the Guild's seductive and compelling circular was the work of an expert gardener. I hear also that nurserymen and florists responded handsomely to the appeal—one firm giving 1,000 Gladiolus bulbs for every camp in the country. Others have filled hundreds of window boxes and delivered them to the camp, some gave Geraniums by the thousands, others presented handsome young evergreens. May the good work go on as long as the camps exist. The address of the National Plant, Flower and Fruit Guild is 70 Fifth Avenue, and the National Chairman of the Soldiers' Camp Gardens is Maurice Fuld.

ONE of the most useful things that garden clubs and the various food production associations will be doing this winter will be acquainting themselves with work done in other states and by other organizations. During the summer and early autumn all of us were too busy to do more than put through the immediate work.

Among the states which have done interesting work is Maryland, in which state the Council of Defense was the first to offer people not only advice—which is easy, and often more blessed to give than to receive—but real help, purchasing tractors, which could be used in preparing the land. Along this line of help for the small farmer offering the use of state-owned tractors and equipment such as he is unable to buy, and yet the lack of which place him at a disadvantage commercially with larger owners, will do more toward stimulating his effort in production than many pamphlets. It will also bring about a spirit of real coöperation with the government, while the farmer will feel that the government is coöperating with him to make his work a success.

VACANT lot gardens are no new thing for Baltimore, for the city last year reported no less than twenty thousand food-producing back-yard gardens. Years before other cities went enthusiastically a-gardening, the Baltimore women were getting the work admirably under way, with lectures and contests and various forms of garden propaganda and showing colored lantern slides of charming French and English gardens—tiny working men's and peasants' gardens; not de luxe estates—a form of garden-propaganda one wishes could be more widely used. It is a delightful type of gardening and while we are making our gardens highly productive of food, we might as well make them productive of beauty also. That the Baltimore war gardens should have been highly successful was to be expected. Miss Martha O'Neill has been a moving spirit in the Baltimore gardens for some years, and Baltimore has had a very competent garden superintendent in Mrs. Adelaide Derringer, who had her training at the Lowthorpe School of Landscape Gardening and has done very able work—especially in the Baltimore war gardens.

THE National Prize Certificate, No. 1, for canned vegetables put up by a war gardener, has been awarded to Mrs. Frank P. Brown of Cincinnati. Mrs. Brown took first prizes that amounted to $100. With this she bought War Savings Stamps. Her garden was 100 x 150 feet. She grew enough for her table all summer, and in addition put up 125 cans of vegetables and had 25 bushels of potatoes.

The National War Garden Commission, which is responsible for the awards, reports two other Ohio women among the first nine blue ribbon winners. Certificate No. 2. went to Mrs. Isabella Jermain, an Indian woman of the Lac du Flambeau Agency in Wisconsin. Other women who have been reported to the National Commission as deserving National recognition are: Miss Flora Krugman, Elyria, Ohio; Miss Alice Voorhees, Bay Head, N. J.; Miss Valesca Diener, Burlington, Wis.; Mrs. W. H. Derriom, Rockwood, Tenn.; Miss Elizabeth Lindner, Cincinnati, Ohio; Miss Alma McManus, DeWitt, Iowa; Mrs. T. A. Chittenden, Akron, Ohio.

MARION, Ind., claims the credit of having more war gardens than any town of its size in North America. J. DeWolf, of the Marion War Garden Association reports 14,000 war gardens in a population of 27,000. This means an average of more than one garden to every two people. (It looks a little, also, as if some of the Marion war gardeners in their enthusiasm must be having gardens that are twins and triplets.)

COMMUNITY gardening, tried this year for the first time in Minneapolis proved a great success. According to Mr. H. U. Nelson, Secretary of the Minnesota Garden Club, his city ranks first in the country in gardening prowess. Minneapolis has a record of more than 10,000 families raising war gardens on acreage that totals more than 2,000, and the crops thereon valued conservatively reach the sum of $500,000. This estimate does not include the 1,500 gardens outside the city limits cultivated by Minneapolitans; but is almost wholly vacant lot and waste land gardening, so that the work represents salvage and reclamation as well as gardening. Evidently the city gardeners intend the land to stay reclaimed for 25,000 small berry bushes were set out beside the regular planting of garden crops.

The crop acreage was as follows:

CROP	ACRES	VALUE
Potatoes	645	$161,250
Onions	95	71,250
Tomatoes	185	55,500
Beans	200	28,800
Cabbage	195	27,300
Corn	280	20,160
Peas	90	19,440
Cucumbers	75	11,250
Melons	80	10,000
Beets	85	9,542
Carrots	45	6,300
Lettuce	30	5,100
Radishes	25	5,000
Parsnips	25	3,750
Miscellaneous	40	7,200
	2,095	$441,842

In the twenty-five largest community gardens 435 persons were employed, one unit having 54 gardens.

WHILE Blue Ribbons and Prize Certificates do not seem to fall to the lot of County officials, Register Richardson Webster, of Brooklyn has been receiving from the National War Garden Commission some very handsome bouquets, and as Doctor Watts held up to emulation the busy bee, so Mr. Percival Ridsdale, Secretary of the National Commission, is prepared to send word of what Register Webster has accomplished to the Registers, County Clerks, or other officials having charge of land records in counties all over the country. He hopes to stir them up to undertake the same line of work all over the country, "so that in another year the Victory garden movement will be as well devel-

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Garden Sash That Hold The Heat

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Which will you take, Yellow, blue, speckled?
Take which you will—speckled, blue, yellow—
Each in its way has not a fellow."

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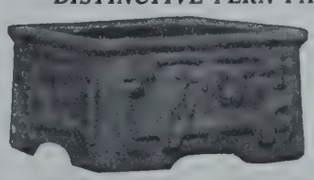

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oped everywhere as it is in Brooklyn." It must, by the way, be peculiarly exasperating to the ease-loving fraternity of county officials, when one of their number does something of real service to the community and demonstrates, thereby what his fellows could do if they cared to exert themselves. Register Webster was able to hunt for owners of unused land in Kings County only, as the records of his office cover only that county, but the work he is doing has attracted attention outside; he receives many inquiries about war gardens in other counties—which inquiries he refers to the proper authorities. Non-obtaining of the owner's consent has usually been due to inability to locate the owner because of lack of address and the Register is making plans to take control next year of this "slacker" land. In some of the Western states, local authorities have been given permission to take charge of this land and assign it to whoever will farm it, wherever the owner cannot be found or refuses his permission. Register Webster, who believes in taking time by the forelock has been sending out cards to all who received war garden permits or booklets offering his help for next year. No one case has yet been heard from in which the gardener intends to abandon his efforts and many have already filed their application for larger tracts of land for next season. The Register is acting on these applications immediately in order that the land may be fertilized this fall. Which action we commend to other vacant lot superintendents.

IN MAKING plans for next year's food production, the use of the automobile should figure largely. "Three million men in the Army," says Mr. Charles Lathrop Pack, "have seen what the automobile can do in getting food to them no matter where they are—in camp, on the firing line, anywhere; and they have learned the lesson—the motor truck is a valuable agent in delivering food F. O. B. the kitchen door. And the friends of the boys at the front, who also have noted the usefulness and agility of the motor truck as a means of bringing supplies to the place where they are wanted, are the Patient Consumers, who next year, it is hoped, will remember this demonstration of the motor's usefulness and no longer be content to watch fruit and vegetables spoil while freight is "tied up," instead they will establish flexible motor truck lines which will bring the surplus from outlying gardens to dozens of small markets in the cities and towns.

"In many parts of the country," says Mr. Pack, "they are following the plan put in operation by Mrs. Andrew Wright Crawford of Bryn Mawr, where automobile owners lend their cars to volunteer food savers who go into the country and help pick fruit and harvest the garden crops."

NEXT year will also see "land army units" equipped as "flying squadrons," with motors, tools, and some farm machinery, so that the Unit can go where needed and take what is necessary for work with it. From all over the country have come in golden reports of the work of the Women's Land Army who have undertaken all sorts of work, and at present writing, in New England are proposing to "get out" wood, which seems rather strenuous, even for a woman's Land Army. It looks as if we in America might be developing a new type of American girl, somewhat akin to those "mighty daughters of the plough" of which Tennyson sung in his "Princess" and yet supplied his imaginary women's college with only three or four —not nearly enough to look after the farm work; as even a poet of to-day would know.

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PRINCE OF WALES

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It is invariably selected by visitors as the most striking and magnificent color combination in my gardens.

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I believe that I have the largest *true stock* of this variety in America and although within the last two years this has sold as high as $1.50 per bulb, I can offer it at the very reasonable price of 25 cents apiece for strong flowering size bulbs, $2.50 per dozen, postpaid.

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Send $1.00 and your personal card and I will mail a neat box of five bulbs of Prince of Wales together with descriptive and cultural leaflet, so as to arrive on Christmas, at any friend's address, that you may forward to me.

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For a limited time only I offer a Prize Collection of *FIFTY* flowering size bulbs in ten of the best varieties now grown in all colors such as Pendleton, Schwaben, War, Peace, etc., together with full cultural directions, postaid to any address for $1.00. This collection will contain only the finest varieties and cannot be equalled at the price anywhere.

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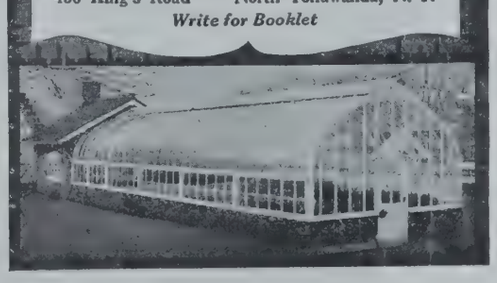

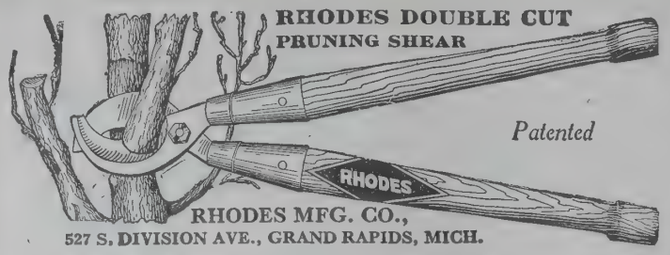

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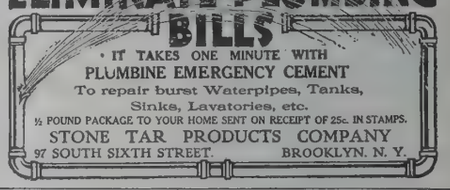
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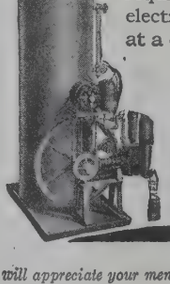

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THE GARDEN MAGAZINE

JANUARY, *1919*

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LEONARD BARRON, Editor

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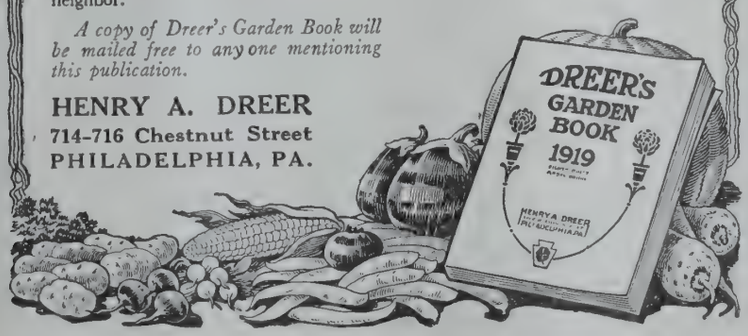

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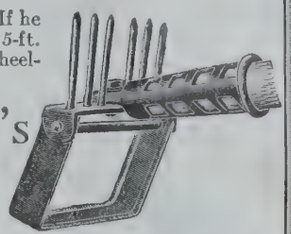

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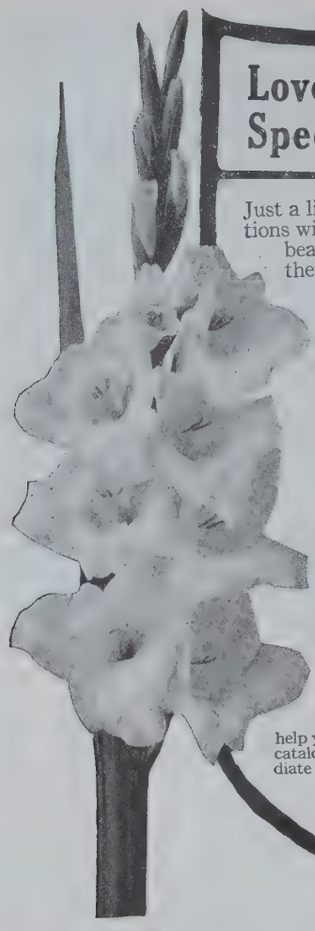

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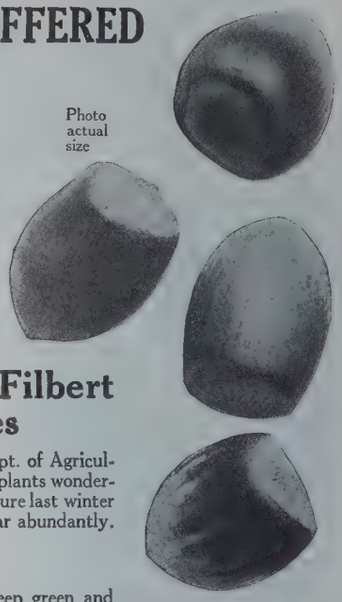

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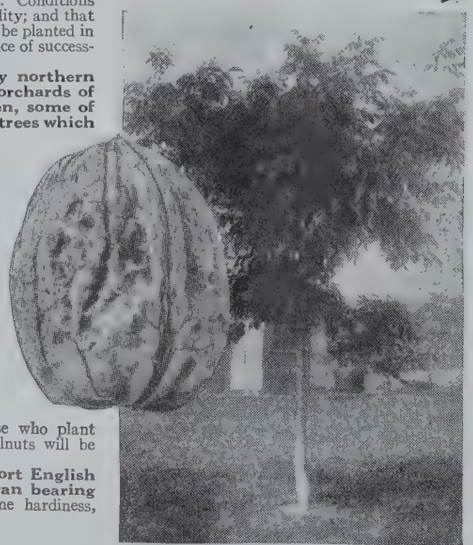

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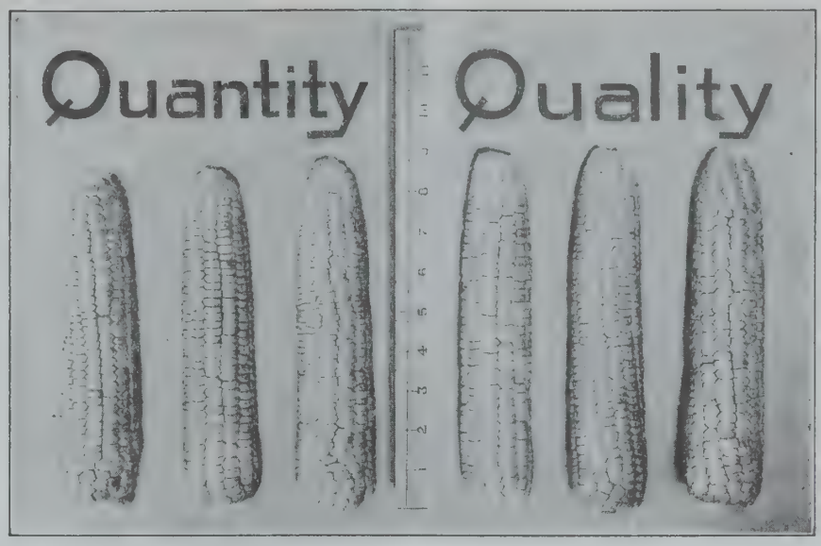

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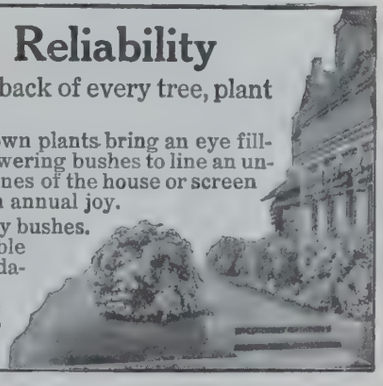

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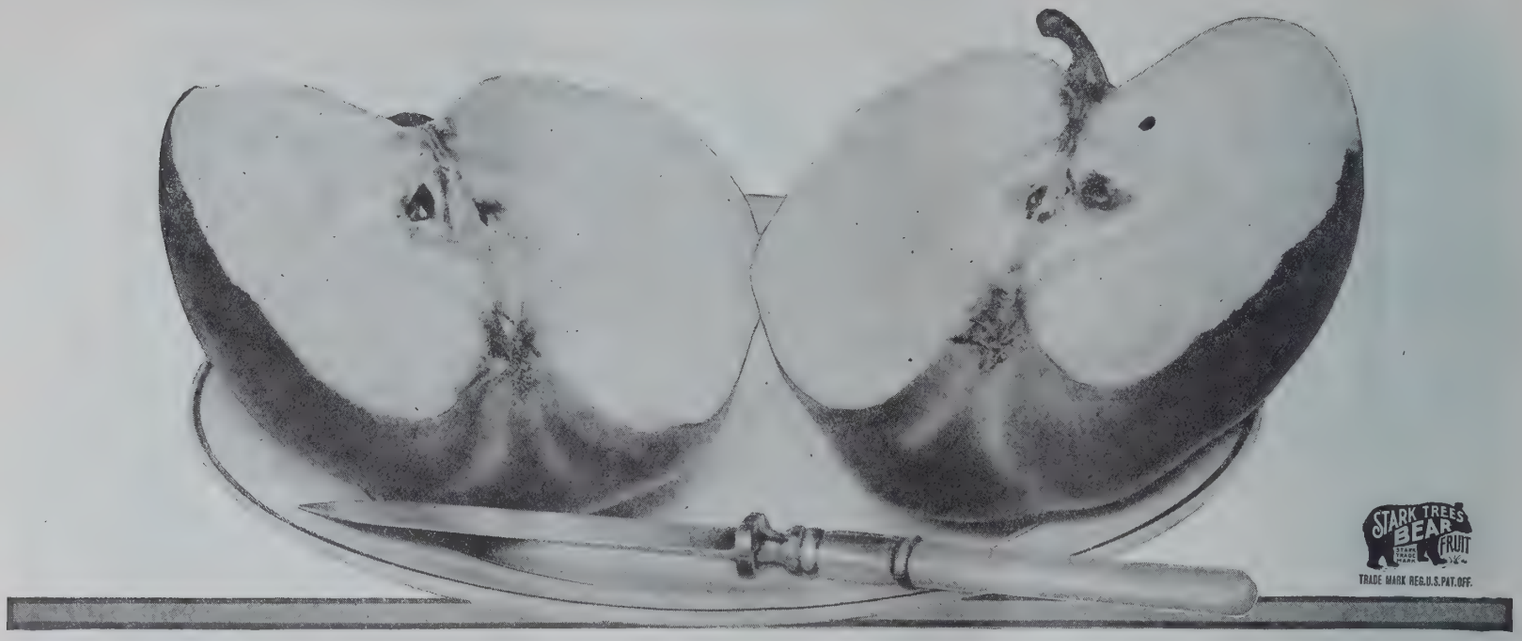

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The Garden Magazine

VOLUME XXVIII JANUARY, 1919 NUMBER 6

AMONG OUR GARDEN NEIGHBORS

Let Us Have "Peace Trees"

WE HAVE lived through the world's greatest war. We have been privileged to see it end; we stand upon the threshold of a new peace. And because the war was the greatest, and the most terrible in all history, the peace that is to succeed it must necessarily become the greatest, most glorious peace time that ever came upon earth. Wherefore, rightly enough, we yearn to celebrate it, to pay tribute to it, to mark it upon our memories and into the course of our daily lives in a manner fitting, worthy, and adequate. But how?

What note would we have such a tribute strike? What thought, what sentiment should it convey?

The dominating idea should comprise the antithesis of all the horrors and trials and penalties of war. It should strike the note of reconstruction, of upbuilding, rather than of destruction; of beauty rather than of sordid ugliness; of peaceful calm rather than of turmoil; of service and helpfulness. All these without the element of tragic sacrifice. It should, in brief, be the symbol, not of death, but of life—of vigorous, everlasting growth.

Why not, then, the "peace tree," or rather millions of peace trees—one for every individual or family that has had its heart in the winning of the war and that now has its heart no less sincerely in the prosecution of peace? Let us plant trees, no matter what kind, nor need we be over precise as to where—the exact place doesn't matter a rap—trees that will stand and grow and become constantly more beautiful as a tribute to the coming of peace, as a symbol of the upward growth of the world and of humanity to bring about which we are prepared to lend our utmost aid.

Our armies now in the invaded, desolated sections of Belgium and France, and our Y. M. C. A., and Red Cross, and other workers are toiling to rebuild those countries, to reëstablish their industries and their agriculture, to beautify again their homes and countrysides, that the scars of battle may be hidden and forgotten. Our country has been spared that destruction and desolation, but always it can be made more beautiful. Why not let this era of reconstruction in Europe be paralleled by a campaign of home beautification over here? It will mean something, a good deal, in fact, to the men as they return with vivid recollections of all they have seen and heard waiting to be blotted out by sights and sounds of peace and beauty. The men who have seen the gardens of England and France will be glad to see a new birth of garden beauty in their home land.

We plan to decorate our cities and towns with flags and banners and plaster arches costing thousands of dollars. And after a while the flags will be taken down, the banners, if spared by wind and weather will be removed, and the plaster sculpture will be broken up and carted away. Why not, instead of some of this, or, if you like, in addition to it, bedeck our surroundings in foliage and flowers, and plant trees and shrubs, vines and hardy plants? Year after year they will remain beautiful, imposing, useful. Year after year they will continue to grow, symbolizing the spread of peace and the democratic justice upon which it is founded. Year after year they will refresh our memories—not of the horrors through which the world has passed, but of the reward that has come to it, of the new, priceless amalgam that has come forth out of the flames of trial and adversity.

The planting of "memorial trees," as suggested by the American Forestry Association, and other agencies for soldiers and sailors whose lives have been taken as hostages of peace does not go far enough. Rather should every family who had a relative or close friend in any way connected with the war's activities, plant its own peace tree, getting the returned son or brother or father or friend to help at the planting ceremony, if possible. The tree would bear no metal tag or tablet—its meaning would be engraven deeper upon the hearts and souls of those who plant it and care for it and watch it wax strong and ever more beautiful. If an Elm, Oak, Hickory, or other ornamental, its shade can render welcome service for generations to come. If an apple or pear, or other fruit, it will sustain and refresh season after season. Even if merely a bush—a "service shrub" as it were—it will gladden the eye and brighten the days of all beholders while always it stands for the peace for which men fought and bled and died.

Nor is this plan, primarily one of aesthetics and sentiment devoid of inevitable material results. Assume that we have four million men in our armed forces, and suppose that the families of half of them are so located that they have a back yard or a vacant lot if not a real lawn or an open field in which to plant their peace tree. That would mean two million or more trees added to the resources, the fundamental wealth and beauty of the nation.

Again there is the effect on our bird population, as emphasized by Mr. T. Gilbert Pearson of the American Association of Audubon Societies, in connection with the memorial tree idea. Far less of our birds, he says, go south in winter than is commonly supposed, and to those that remain north, trees are a matter of life and death. Reduce their numbers and our feathered friends and allies are deprived of shelter and sanctuary; increase them, and the birds thrive and multiply and serve us well in our eternal warfare against the insect pests of flower, fruit, and food plants.

Trees along our highways will add to their attractiveness and kindle a new community pride in those who live amongst and beneath them.

Trees on the hillsides will save our soil from destructive erosion, our low lands from disastrous floods, our wells and springs from serious shortages in times of need.

Trees in the garden and about the home will enrich the soul and lend new interest and color to life.

"Let there be peace" indeed. And let us commemorate its advent by planting more of God's own trees in God's own country, and ours.

Plant "peace trees" this spring.

Restricting Importation of Nursery Stock

IT HAS been at last officially announced by the Department of Agriculture that a quarantine order "governing the importation of nursery stock and other plants and seeds into the United States as a protection against the introduction of insects and pests and plant diseases" has been issued; and that on and after June first of this year, the much debated regulation prohibiting the importation of plants as articles of trade goes into effect.

"Under the terms of this quarantine and regulation, fruits, vegetables, cereals, and other plant products imported for medicinal, food or manufacturing purposes, and field, vegetable, and flower seeds, may be imported without permit or other restrictions. Other classes of plants *for propagation* permitted entry, including certain bulbs, rose stocks, cuttings and scions, and seeds of fruit, forest and other ornamental and shade trees, and of hardy perennial ornamental shrubs, may be imported only in accordance with the permit and other requirements of the regulations."

The effect of this order on the florist and nursery trade and the reaction upon our gardens will be far reaching. No more will we see Azaleas, Bay trees, and Palms, and other products of the nurseries of Belgium for example. It is idle now to point out that the most devastating insect pest, the gypsy moth, for instance, was not introduced as an accidental rider on plants and nursery stock; but was the deliberate introduction of a scientific investigator for an entirely different purpose; and that something like that could be said of a multitude of other diseases and pests.

That our gardens must suffer more or less by the restricted introduction of novelties is inevitable. The bright ray that the future holds

out is the forced turning to domestic plant material. It is hardly possible to say too much in praise of some of the splendid native plants of North America that are not common articles of nursery trade, either because the foreign material (which was not always ideally adapted to our climate) could be obtained so cheaply, or because the nurseryman lacked imagination enough to introduce them in quantity.

Although the importation of certain florist and nursery novelties and certain other stock is permitted because the entry of these classes of plants for purposes of propagation is represented by experts to be essential to the floriculture and horticulture of this country under existing conditions the barrier is partly up, and importations will only be made through the Department of Agriculture for those who have special facilities for that kind of business. Of course, in the long run we may all be better off. Perhaps. Who knows?

Plan With a View to Convenience

HERE is a 1918 incident that has taught an experienced amateur gardener an important lesson. It should be valuable to others who will be guided thereby:

In his patriotic desire to grow enough vegetables to supply his family for a year, and to have a surplus for the neighbors, Mr. Blank rented a couple of lots adjacent to his home and planted nearly half to late potatoes, other vegetables occupying the balance. In conversation with the editor late in November he said: "I'm permanently cured of growing this crop unless I can do so on cheaper land and on a large enough scale to utilize horse or tractor drawn machinery. My objections are that late potatoes occupy the land during the whole growing season so there can be no succession crop; they require the whole area so a companion crop is out of the question; they demand far too much hand labor for planting, cultivating, spraying and harvesting; the cash or equivalent returns are too small to pay for this labor at ordinary laborers' wages; they therefore mean a greater loss if the work is charged for, as it should be, at the rate my time is worth. But while these points, especially the one last mentioned, are important, the next one is, to me, most important of all! the slow hand work of harvesting must be done at a season of the year when time is most valuable to me—to do it I must either hire a man or lose money. Even if my plot had yielded maximum returns (which it didn't) it would not have paid. In fact, I would have been money in pocket if I had either not planted potatoes at all, or had not dug the crop but had bought my winter supply at the local store at late November prices—$2.25 a bushel! So, as I have said, I am cured of wanting to grow potatoes by hand methods! Well chosen crops of other kinds not only gave me a quicker turn over but I used most of them either as companion crops; so with far less effort I secured maximum returns from the balance of the area—a fact which will render me immune to late potatoes as a crop for the rest of my born days!"

Herein lies the important lesson: Plan to suit your convenience. Make your gardening subsidiary to your work,—your "recreation." If you are likely to be busy or to go on a fishing or hunting trip during a certain period of the season plan *now* to arrange your plantings so no crops will need cultivation, spraying, or harvesting during that time. By so doing you will not have the garden "on your mind" when you should devote all your time and energy to your regular business or to the enjoyment of an outing—something for the time being more important. Thus you may keep yourself from being included among those people who drop gardening because it interferes with their work or their other pleasures. Don't attempt more than you can carry through, and so automatically gravitate into the ranks of the apparently slipshod gardener.

The OPEN COLUMN
Readers Interchanges of Experiences and Ideas

A New Garden Borer Pest.—What threatens to be one of the worst foreign pests ever introduced into this country is the European Corn Stalk Borer, which has spread through many Massachusetts towns in the last two years. It probably reached this country in bales of hemp imported by a cordage concern near Boston and had increased by thousands before it was discovered and its identity determined. Now the Federal Government has established a field station at Arlington. A quarantine has been placed on all of the towns where borers have been located. Once established, however, this borer is not easily gotten rid of for it lives over the winter in the adult stage and multiplies with exceeding rapidity. The problem would be easier to solve if the pest confined itself to corn stalks and stubble. Investigators are finding, though, that it winters in the stems of many different weeds. Even celery and Dahlia stalks

Done by the stalk borer which also is becoming a pest of many plants in the flower garden

have been used for its winter home. Early in the fall the borers eat a roomy apartment well up in the stalks of whatever plants they choose to inhabit. Cutting the corn stalks and mowing the weeds at that time is the most effective way of getting rid of the pests, if the weeds and stalks are carefully destroyed. Later in the season the borers burrow downward until they get below the ground in many cases and getting rid of them becomes very difficult. In the spring the borers emerge as moths and commence to lay eggs. The caterpillars hatched from these eggs will feed upon the early corn. The damage done by this first generation is small compared with the depredations of a second generation which appears in August. These late hatched borers feed on the late corn (both in the stalks and in the ears) and the greatest amount of damage is done by working on the tassels. The stalks are weakened and the tassels fall over before the pollen is ripe. That means that the corn is not fertilized and that a meager crop is produced. Oftentimes the ears which do grow are rendered unsalable because of the tunnels bored into them. It has been estimated that every May moth lays seven hundred eggs, on the average and two or three hundred more in the fall. Nearly all the eggs are likely to hatch. Some of the moths kept in cages at the Arlington station have laid more than a thousand eggs. To put the facts concretely, a single caterpillar present in an old corn stalk early in the spring can be expected to have a progeny of 315,000 borers at the end of the season. The that fact the Corn Stalk Borer also attacks other plants in the flower garden is important.—*E. I. Farrington.*

—Specimens of an unknown borer in Dahlias and other plants reached us last season and the assumption is that it was this pest. The obvious precaution is to burn all refuse where the borer's work has been suspected.—*Ed.*

In the Interest of Decoration.—A prettily garnished dish upon the table always adds to the interest of the meal and when bits of toast were taboo and we had to think twice before we cut a lemon, we have been more than ever before dependent upon growing things from the garden to use for this purpose. Last summer, thinking it would be interesting to have a variety, I devoted a small patch of earth near the kitchen door to the growing of green garnishes and I think the experiment well worth repeating. It was almost no trouble and both family and visitor enjoyed its decorative results. Besides Moss-curled and Fern-leaved parsley, I grew chervil, which is almost as pretty as parsley and adds a fine racy tang to salads and other dishes; chives, mustard, garden cress, dill, whose seeds may later be used in pickles and in green apple pies; beets, sown thickly and the pretty red leaves used while small; mint for the embellishment of cold tea and rounds of water melon; curled endive, lettuce, and celery. The last three were not treated in the usual manner as they were required only to produce leaves of a size to be decorative. They were simply sown in drills and not thinned out. There was but one row of each kind but they gave a wide variety to choose from and next year I shall add Nasturtiums and horse radish to the collection. Chervil and lettuce were sown several times during the season to keep them in evidence and the mustard should have been as it quickly becomes too coarse for use. Many of these plants were good to use as seasonings as well as garnishes and it was "commodious" as the old books say, to have them all together and so close at hand. A light covering of leaves at the approach of cold weather keeps the bed long in good condition.—*Louise B. Wilder.*

Pink Snapdragons from Cuttings.—I am a devoted reader of the GARDEN MAGAZINE, and in return for the many helps I have received from it, would like to tell others how I managed to have a quantity of a beautiful pink variety of Snapdragon for very little cost. From a packet of pink seed I had many shades of pink flowers. I selected two plants of the same shade (a beautiful rose pink), and in the fall put them in pots cutting the entire top down to within three or four inches of the root. I kept them with my Geraniums, etc., in a light cool cellar. In February the plants began growing. As soon as a young shoot was long enough to make a cutting I pinched it off, and planted it in the side of the pot where it quickly rooted. When I pinched off a shoot two grew in its place to be later pinched off and rooted. When my garden was ready for them in the spring I had about five dozen well rooted cuttings ready to transplant. They bloomed much earlier than seedlings of the same size and they were all exactly alike in color making a beautiful show.—*V. E. Little, Ill.*

Marl Offers Lime Supply.—Gardeners who are situated near natural deposits of marl have in it a good source of lime; there is no question about the value of marl where limestone is needed. Marl is found usually in muck swamps. Dry marl may contain as much lime as the best grades of limestone. Deposits vary considerably in purity, but where they are more than two or three feet thick they usually contain more than 80 per cent. of lime carbonate, equivalent to 45 per cent. of actual lime. To use marl directly from the pit, it must be taken out when the swamp water is low. Usually the fall is the best time. The wet marl may also be spread in as small lumps as possible. When these have dried out, they may be crushed and distributed.

The American Rose Society proposes that its members unite to "make the first year of peace a year of Roses." "Proof that the Rose has tremendously helped in fighting this war to a righteous finish is constantly coming in," says Prof. E. A. White, Secretary. "The sight and the smell of a Rose which reminded him of home has put fresh 'ginger' into many a wearied and worn French, English, or American soldier. It is certain that France and Belgium will blossom in joy in 1919. Ought we in America be any less attentive to aiding nature to rejoice? * * * "Let us make 1919—the first year of peace—the greatest Rose year in the history of the continent. Let us grow Roses, give Roses, and live Roses, the season through. The Red Cross, the Y. M. C. A., and all the other great ameliorating agencies will need help. Let us show Roses to assist in getting that help."

Early Winter Flowers.—I was much interested during the last part of November in late-blooming flowers. My experience gives the Calendula the lead, though Thanksgiving week saw also flowers in good numbers of Verbena, perennial Gaillardia and certain Marigolds. Sweet Alyssum never stops blooming, though the variety I have is not very conspicuous. I was much pleased to find in a retired part of the garden late in November a nice bed of Virginian Stock, all plants about as bright as they would have been in summer. This modest plant is not raised much, but it has its uses, if only to come out strong late in the season. I would be glad to get some further information as to the raising of such flowers that are indifferent to light frosts, as they are a real comfort when most of the garden is dormant. I suppose that such plants ought to be kept from blossoming early as much as possible or maybe sowed in midsummer. The Calendulas that flowered so late were almost as large as a silver dollar and they came out so fast that a single plant furnished an abundance of color for the table. I saw on November 19th a beautiful bouquet, as fresh as it would have been in August, made of a few green leaves, four or five white Bachelor-buttons, two Verbenas and a head of Mignonette, displayed on an office girl's desk. Why do they send us frosts out of time to spoil the gardens long before the arrival of winter? We can get the better of the freeze-ups somewhat if we make the proper effort. What say others on the subject?—*John W. Chamberlin, New York.*

My Shirley Poppies were the admiration of the neighborhood. It was only a plot 6 ft. x 4 ft. but morning after morning I picked more than a hundred blossoms. I appreciated them the more coming after years of failures for when they would be ready for blossoming the hot, dry, Iowa winds would blast the buds. Here is my secret of success: One late February day the sun had melted the snow in spots so I was able to loosen the earth to a depth of a few inches. I sprinkled freely with fertilizer, then sowed my seeds, pressing the ground firmly, and covering with cloth held down by boards. The snow and freezing weather followed but the last of April when I removed the cover there was a soft film of green over the ground. The late frosts did not hurt them, and how rapidly they grew! They blossomed early and endured the later dry spell.—*Mrs. E. J. Brownson, Iowa.*

Petunias as Fillers.—I doubt if one can find an annual other than the Petunia that makes such excellent "filling in" material. It will grow in sun and in shade, in light soil and in heavy soil, in rich soil and in poor soil, not equally well perhaps, but always well enough to justify its use as an expedient with which to patch up some ugly spot in the garden. In one place the Petunia brought forth its joyous bloom along a stretch in the garden that the sudden wilting of Phlox threatened to leave bare for that season—the plants receive about an equal portion of sun and shade. In another place the Petunia brightens a clay ridge till that ridge can be brought into proper condition—full sun and partial drought was its portion. Along a fence where Roses newly planted are taking a hold a double row of Petunia bloomed prettily throughout the garden season and even beyond the first light frost.—*C. L. Meller, No. Dakota.*

A Two-Purpose Hoe.—Cutting an ordinary garden hoe diagonally across from one corner to within a few inches of the top at the other side makes a serviceable two-purpose tool. Hoeing is as easy as with any other tool while the acute angled corner gives one the advantage over a common hoe in working close to small plants without danger of injury to them. This corner also makes the hoe as good a tool as any in preparing the trenches for seed sowing. The tool is really a hoe and a small cultivator combined. The cutting can be done either with a hack saw or a cold

Hoes adapted with right and left handed pitch to suit the worker

chisel. The edge can then be smoothed down and sharpened with a file. Actual experience with this hoe among a number of workers brings out the fact that one works with the right corner of the hoe while another always uses the left corner. This matter of working naturally with the right or left side of a hoe must be taken into account when cutting such a hoe for your own use. Therefore, to make the hoe of real value to yourself, find out first what corner of the hoe you naturally work with and then cut the hoe diagonally down to that corner.—*C. L. Meller.*

American Committee for Devastated France.—In the GARDEN MAGAZINE for November reference was made to what is being done by one organization in reconstruction work in the

Photo by Harry B. Lachman

Worker of the Committee for Devastated France in a courtyard at Château-Thierry after the Germans left

French orchards, and one of the illustrations showing the return to a flower garden at Château-Thierry was supplied by another organization, the American Committee for Devastated France, the national headquarters of which are at 16 East 39th Street, New York. For a little over eighteen months it has been concentrating its efforts upon reëstablishing people's occupations in northern France. Apart from being instrumental in clearing five thousand acres of barbed wire, filling shell holes and trenches, plowing and seeding barley and rye in quantity to feed four thousand people for one year, this institution planted seven thousand fruit trees. This effort is really greater than the figure would seem to indicate; for the cost of operation which in normal times is about eight dollars an acre, in these recent months amounted to three hundred dollars. The value of the reconstruction work must be measured, not entirely in the future possible crops, but also in the present employment given to the civilians and returned soldiers in clearing up the land. A year ago February millions of vegetables were set out by children in various communes. When the March offensive began the reconstructed region had to be abandoned with such protection as a hurried and forced retreat could permit. But the work had been well done; and when the tide rolled the other way the American Committee found its work well in hand, and about ninety per cent. has been saved. The work of tree planting done by this committee is confined to the region of the Aisne.

Do Melons and Cucumbers Mix?—In the October GARDEN MAGAZINE there is a very fine article entitled, "How about next year's seed?" which I have read very carefully and hope to reap some benefit from doing so. I must differ, however, on one point from Mr. Rockwell. I refer to the last paragraph of the article wherein he says "cucumbers, melons, and squash will *not* mix in spite of the popular assumption that they will, but the different varieties of each mix readily." Now I had occasion this past summer to inspect an acre of ground that was planted to what was supposed to be Perfection cucumber but through some mistake or accident the seed had become mixed with musk melon and I think off the whole acre the grower only got two fruit (melons) fit to use. The vines were quite distinct; but as for the fruit! some looked like very nice melons but had a very decided cucumber taste, others vice versa. I would like some one to explain this as whenever the subject of seed saving is mentioned I am all attention.—*Hugh Milloy, Ontario.*

Dwarfing a Grapevine.—A curious but very practical method of dwarfing a grapevine has lately been discovered by merest chance. It is possible that this method may become popular with growers of grapes who like to keep the vines within narrow limits. Among a dozen grapevine cuttings that were stuck out for purposes of propagation, by mischance, one was stuck with the bud-end in the ground. But this vine, as well as the others, grew. Its formation, however, was peculiar. Its branches, instead of being sent upward at an angle of 45 degrees, were sent downward at the same angle. The stem seemed to grow stout by a suppression of growth. In due time this vine was transplanted to its permanent site, which was against a building. Here it continued its stocky, down-branching growth. Proper pruning and a little training shaped the vine readily; and to-day it is a very heavy bearer. Its curious shape, while confining its spreading propensities, seems to improve rather than to hinder its powers of bearing.—*Archibald Rutledge, Pa.*

Wood Ashes for Potato Bugs.—I noticed the article about paris green being hard to get since the war, and thought it might be worth while to mention the fact that wood ashes for potato bugs are quite as effective as paris green. Sift on when the vines are wet but do not use too much at one time.—*Mrs. Iliff, Kan.*

Planning for Your Hotbed

T. SHEWARD

FOR growing early vegetables and starting seedlings to give plants for the summer garden the hotbed (*Fig. 1*) is an absolute necessity. It should be made up about the third week in February or the beginning of March but the preparation must be made before.

The first thing to do is to collect fresh strawy horse manure that will heat up well. Turn it every day for three days, mixing in about one third leaves when turning. The quantity required depends upon the number of sashes to be made up, one load to a sash is sufficient.

When the manure is well mixed with the leaves and ready for use, mark out the place where the frames are to stand (facing south with some kind of shelter on the north if possible), and place the manure on the ground to the depth of two feet and one foot wider than the frames on each side. Throw on the manure in layers, six inches thick at a time. Tread it in and keep adding more manure until the mass is two feet thick. Place the frames and add more manure, banking up the sides (*Fig. 2*). Then put another foot of manure inside the frame.

The next operation is to place about six or eight inches of prepared soil over the manure after passing it through a one-half inch sieve, the rough material going below and the fine soil remaining on top. The completed hotbed is then ready for use.

Another method (*Fig. 3*) of making a hotbed is by taking out two feet of earth from the inside of the frame and filling it up with manure. When it is completed, water it and put the sash in place. If the bed gets too hot, tilt the sash a few inches in the daytime but close them about three o'clock in the afternoon.

If boxes or flats are to be used for sowing the seed, fill, water, and put them in the hotbed until required. By doing this the drainage of the boxes will be settled and the soil will be in the right condition for sowing the seed. A box eighteen inches long, one foot wide and three inches deep is a useful size and not too heavy. Make holes for drainage (*Fig. 8*) in the bottom of the box. Place "crocks" or broken pots over the holes (*Fig. 10*) or if space has been left in the bottom for drainage, the crocks can be placed as shown at (*Fig. 9*). Over the crocks place the siftings (*Figs. 11, 16, 19*) from the potting soil and, over this, fine prepared soil that has been passed through a one quarter inch sieve.

As a general rule, rather poor or sandy soil is used for sowing seed, the better soil being saved for transplanting. Plain loam or old potting soil, well sifted, is good for most seeds; but some kinds such as Begonias, Calceolarias, Celery, etc., like a mixture of one third leaf soil or very old manure to two thirds loam. In filling the boxes press the soil in firmly and level it with a piece of flat, smooth board (*Fig. 20*) with a handle fixed to it. Water and stand to drain for a day or two before sowing the seed. Sow the seed (*Fig. 12*), cover lightly with fine soil and press the surface down gently with the piece of board. Then cover the box with a sheet of glass (*Fig. 13*) and over this a sheet of paper until germination takes place. In sowing the seed the amount of covering depends upon the size of the seed. Cover large seed such as Cannas or Castor bean one quarter inch deep. Soak in water before sowing. Fine seeds like Begonia, Lobelia, and Calceolaria need no covering; or, if any, just a fine sprinkling of sand.

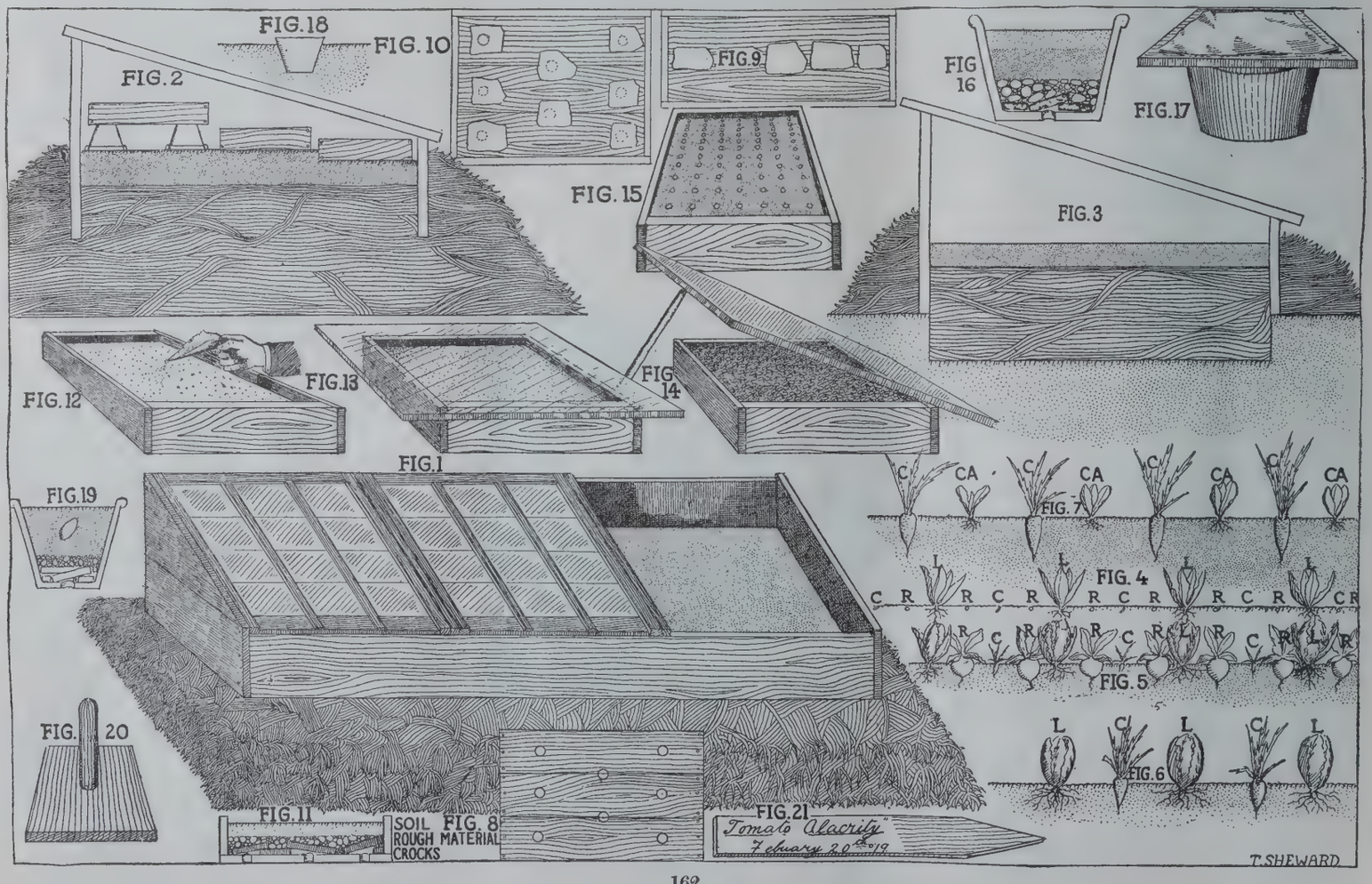
The method of spacing large seeds is shown in (*Fig. 15*). Space tomato seed in this manner if only a small quantity is sown. The seedlings do not need transplanting so soon and are much stronger than if crowded together. As soon as the seed germinates tilt the glass (*Fig. 14*) for a day or two and then remove. When boxes of seedlings are covered with glass keep the glass clear of moisture by wiping it daily. Of course, all kinds of seed do not need glass over the boxes but Celery, Begonias, etc., germinate better if covered.

In sowing very fine seed, pans (*Fig. 16*) are best, especially for Begonia seed. Cover the pan with a sheet of glass (*Fig. 17*) and lay a piece of paper on the top. Plunge the pan in the hotbed (*Fig. 18*). Sow English frame cucumbers in three pots (*Fig. 19*) and plunge in the hotbed (*Fig. 18*). Label seedlings (*Fig. 21*). To bring the seedlings nearer the light raise the box up on pots (*Fig. 2*).

If the hotbed is put up to raise early vegetables the seed is sown directly on to the bed. The best soil for this purpose is hotbed manure well broken up and passed through a one quarter inch sieve, put on to the depth of six or eight inches.

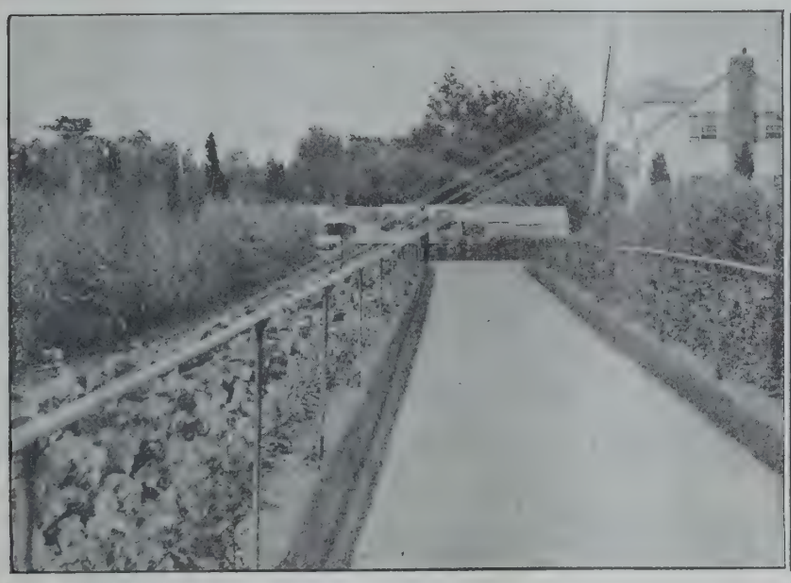
A CROPPING "SYSTEM"

A good system for close cropping is to plant out lettuce (Grand Rapids) about six inches apart (*Fig. 4*) and between the rows sow carrots of an early forcing. Plant lettuce (*L Fig. 4*) and radishes (*R*) Early Rose forcing, with carrots (*C*) between. When the radishes (*R Fig. 5*) are ready for use, the carrots (*C*) have room to develop; and also the lettuce (*L Fig. 6*) is ready for cutting in time for the development of the carrots (*C*). Plant cauliflower between the carrots so that when the carrots are pulled the cauliflower can use all the space, (*Fig. 7 C A*). Plant melons for a summer crop after the cauliflower has matured.

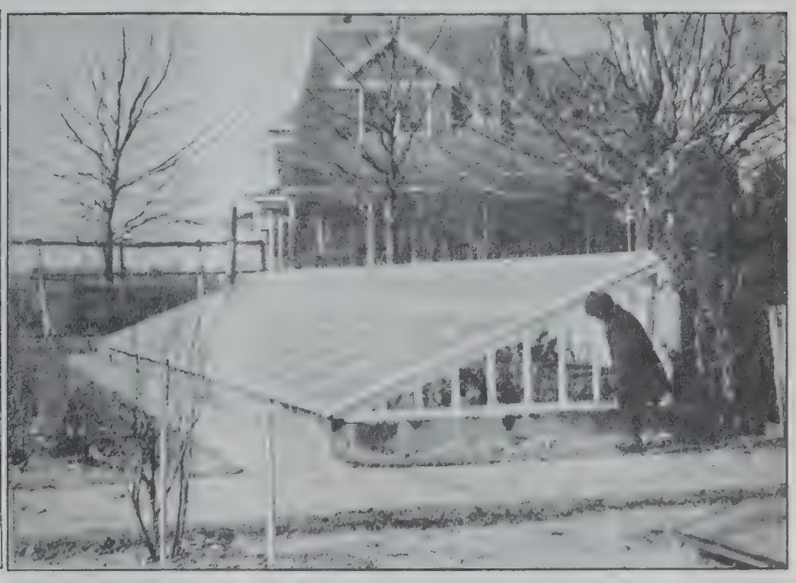


Demobilizing the Garden W. C. McCOLLOM

Getting Back to Pre-war Conditions—Reconstruction and Replanting Shubberies and Borders, Lawns, etc.



Nothing like water! and an irrigating outfit is a wonderful saving in labor



With the changed conditions the neglected greenhouse will again be brought into operation

AN OLD darky hostler commenting on the good qualities of one of his charges that just lost a race due, he thought, to very poor driving, said: "If you tie that horse to a post and lick him hard he ain't got any speed, but you cut that rope and jest says 'giddap' then no north wind could ever ketch him." The rope is now cut for the gardener, so let us see how fast we can go; as for the past few years, we have done our mite tied to a post, as it were! We have largely fed ourselves and our families, releasing the product of the farmer to supply our fighters and friends across the seas. We were not driven to this task. On the contrary, we rather welcomed the opportunity, but all the same we were not doing things that we really wanted to do. Our gardening was circumscribed.

Brush up and clean up all around! Get out the shears and regain control of all hedges, and formal decorative plants

NOW we can be just a little selfish; we can start planning again on a personal and permanent basis. We worked early and late trying to make bushels grow where only pints grew before; we spaded up our sentimental Rose garden to grow potatoes; we labored with an old bent-nose spade, not purchasing a new one because there was other and more important use for steel; we bought string because the Government required the raffia; fertilizer we used as sparingly as the small boy uses soap and water; we counted our seeds—yes, we did—so there would be enough to go around.

Why did we do all these things? Not just because the Government asked us to, but because of our conscience. We wanted to do these things to help others. The proof is the success that accompanied the spontaneous outburst, for no enterprise can be successful unless it is backed by a willing spirit. Now conditions are different, and we can once more do the things that were postponed for the "period of the war." We can and ought to start new constructive work.

ONE big lesson that the war brought home is a wider realization of the fact that from the earth come all the necessaries of life. There

And just for the pure pleasure of it we can conscientiously sow Sweet Peas on the fences that so lately held beans

is plenty of reconstruction work ahead for the ambitious gardener, many of the new gardeners were seriously handicapped due to haste in choosing locations. Hard work and constant application helped many to overcome these obstacles. But these gardens must now be brought up to their proper standards. They must be replanned if lacking in practical essentials; they must be improved ornamentally; hedges may be planted to enhance the appearance, or perhaps a fence covered with cane fruits will best suit the purpose. The garden must have a worthy setting to excite interest and admiration; where there is nothing at stake indifference breeds neglect.

Reconstructive Planning

IT WAS quite apparent even to the layman that, while we were busy hoeing beans, many of our garden friends (and even favorites) were neglected, simply because they were not "good to eat"! That was all very well in its way, but we now want to "brush up." Are we going to let the returning soldiers see a run-down America to welcome them—they who have seen the gardens of France and England? So, if you have a garden "hobby" just get on it and ride, because your interest will insure results. Don't ponder long over dividends from the garden, but get busy and improve your garden and its surroundings—*put it back where it belongs!*

If the hedge was winter-killed in the severe cold of 1917-1918 plan now to replace it as soon as spring opens. If implements are beyond the point of sensible repair get new ones, now. Invest the earnings from your Liberty Bonds in your garden, make even the garden rejoice that the war is over. Make a general inventory of the needed garden materials—stakes, labels, weeders, garden lines, and other necessities. Don't, oh! don't try to garden with poor tools; get good ones, the best you can afford. Take a lesson from Uncle Sam: plan big.

FLOWERS are to the eye and mind what vegetables are to the taste and stomach. Our minds have been filled to overflowing with

the emotions from big events for the past few years, and we have neglected our flowers. Numerous novelties of merit have been introduced during the past few years; buy them and get up to date. See that the perennial border down the centre path of the garden is always attractive with a selection of varieties to bloom at all seasons. Sow annuals in abundance to give color and to cheer up the surroundings when the perennials are lagging. Make a Rose arbor at the entrance of the garden, introduce a few pieces of well placed and tastily chosen garden furniture. The only value of money is to procure for us the things that we desire. What more worthy purpose than pleasant, healthful and wholesome surroundings?

Greenhouse and Frames

AFTER the fuel scare the greenhouse looms up again as a big factor in successful gardening. It will need putting into order too, the boiler and heating apparatus looked over and put in proper repair, broken glass replaced, the woodwork painted, etc. Get some compost ready and make some flats for seed sowing, and so start work on full schedule again and enjoy postponed or interrupted pleasures.

The coldframe is a worthy substitute for the greenhouse, and is indispensable for the small garden. If you have been struggling along without frames, start now on this new basis. If you have frames put them in commission at once. Get some manure to make the hotbeds. A few loads of good top soil is quite necessary; it will be improved for this work if it is screened through a coarse sieve. The earlier you get these materials assembled the better prepared you will be to start sowing the seed properly when the time arrives in a few weeks from now.

Lawns and Shrubbery

LAWNS have been neglected to a great extent for the war period, many were turned into potato fields and must be brought back. But the soil will be all the better for the change. By getting active now, effort and expense next summer can be saved. Where there is any substantial top growth that was neglected in the cutting last summer, burn it. The fire won't injure the roots, and the ashes are a good fertilizer. A top dressing will be very beneficial. Lawns that have developed any baldness due to war worries should have some grass seed scratched into the surface.

Ornamental shrubberies have also been neglected and need a thorough overhauling. Those that have become woody from lack of proper pruning must be handled vigorously. It may seem harsh treatment in some cases but the game is worth it. Needless growth that is gradually wearing out the vitality of the plant and all thin weak interior branches must be removed entirely. Plants that flower on new wood, such as the Rose, must be cut severely; early spring flowering shrubs such as the Lilac can be cut *after* they have finished flowering.

Conserving Beauty in the Victory Garden

ELIZABETH L. STRANG

Planning for Present Intensive Utility and Laying Lines for a Later Transition into a Bower of Beauty—Trees and Shrubs That Serve the Dual Purpose of Flowers and Fruits

IN THE first burst of enthusiastic preparation for the growing of foodstuffs in the home garden one was tempted to ignore, even totally sacrifice, its beauty spots—an altogether unnecessary proceeding. The accompanying plan is designed to show how beauty may be obtained by the careful selection of a few varieties so disposed as not to interfere with the intensive use of the land, and which will nevertheless be good to look upon when the backyard is once more carpeted with green.

Many useful trees and shrubs of striking beauty of form, and others selected for their bloom alone, may be so arranged as to take the place of flowers where beds must be filled with vegetables, and the flowers that are permissible in a victory garden must make up for their lack of numbers by size and effectiveness, and intrude as little as possible upon the gardener's time. We take a typical suburban or village lot 60 x 120 ft., the house well forward to the street, the usual garage and driveway, a space reserved for drying yard, a paved terrace faced by a small grass area, and a wide open space which is intended at present to be devoted to vegetables, and which will ultimately make a lawn framed with green foliage and flowers.

Ornamental arbors and other pieces of garden furniture may well find place in space temporarily given over to vegetables—to remain after the transition

FOR the time being this outer border should be separated from the central plot by a walk of firmly trodden earth or a line of stepping stones. A few feet back from the sidewalk where the fallen fruit would not be annoying to the passerby, Black Walnuts would make excellent shade trees. They are shapely, large, and their finely divided compound leaves furnish an agreeable shade.

Toward the rear of the lot it is decidedly utilitarian. Fruit trees are so placed that their blooms will mass effectively in the early spring, when we have only a few Daffodils as a forecast of the garden to come. Small sour cherry, plum, crabapple, pear, dwarf apple, or sweet cherry are all of suitable size to partially screen the garage on one side, and form a balancing high mass upon the other.

Quinces are placed at the edge of the drying lawn where their picturesque shrub-like forms and large pink and white flowers may be seen to advantage. Massed in the corner against the garage is the Goumi (Eleagnus longipes), whose fruit, like small plums covered with silvery bloom, makes excellent jelly. Another harbinger of spring is the Shadbush (Amelanchier canadensis), conspicuous for its masses of white flowers in April, but not so well known for its delicious fruit which ripens in June, and which have the appearance and taste of blueberries. This like the Bush-honeysuckle will thrive on the shady side of the house.

Next the street and driveway is a hedge of Common Barberry whose yellow blossoms are attractive in spring, whose foliage colors well in autumn, and whose abundant red berries make splendid jelly, either alone or mixed with apple juice. In sections of the country where grain is a farm crop this should not be planted because it harbors the wheat rust, an objection that does not apply to its relative the Japanese Barberry which is also more gardenesque in appearance.

Boundary borders planted to flowers and shrubs in the beginning will be ready with "matured effect" whenever the central area becomes a lawn

Aside from its white flowers which blossom in July, the berries from a single cluster of Elder will furnish sufficient color to transform an insipid kettleful of apple juice to a dancing ruby.

Standing above the lower masses of the gooseberries, their tall stems spaced at equal intervals, the standard currants are particularly decorative when laden with pendant clusters of gleaming red fruit. Blackberries will thrive on the shady side of the fence, and who has not admired their blossoms, like small white single Roses, along a country road?

Grape vines, preferably the Catawba whose clusters of small red fruit are as attractive to the eye as they are delicious to the palate, furnish shade for the trellis adjoining the living room. Wild strawberries would also thrive in the shade near the blackberries, but would have to be collected from the meadow or the roadside. In the shade of the fruit trees where it can spread undisturbed mint makes a fragrant and a useful bed. The space between the driveway and the house can be bordered with parsley and sown to Marigolds and Cornflowers of orange and blue.

PLANTING LIST

The Figures Refer to the Index Number on the Plan

		HEIGHT	COST
	TREES		
1	Juglans, 3 trees. Black walnut	5′–6	$ 1.80
2	Dwarf sour cherry, or other fruits of medium size like plum, pear or dwarf apple, 3 trees	5′–6′	2.25
3	Peach, 1 tree	5′–6′	.40
4	Plum, 1 tree	5′–6′	.60
5	Quince, 2 trees	3′–4′	1.00
	SHRUBS, VINES, AND SMALL FRUITS		
6	Eleagnus longipes, 4 plants, 5′ apart	2′–3′	1.40
7	Grape Catawba, 3 vines	2 yr.	.75
8	Clematis paniculata, 6 vines	2 yr.	1.50
9	Tecoma radicans (Campsis), 2 vines; Trumpet-creeper	2 yr.	.50
10	Berberis, 65 plants 2½′ apart, barberry for hedge	2′–3	13.00
11	Blackberries (or gooseberries) 8 plants, 3′ apart	....	1.20
12	Raspberries, black or red, 10 plants, 2′–3′ apart	....	1.50
13	Standard currants red fruited, 7 plants	....	7.00
14	Syringa vulgaris hybrids, lilac, 9 plants, 2′–3′; Madame Lemoine, double white, 3′ high; Marie LeGraye, single white	....	2.25
15	Exochorda grandiflora, 2 plants, 3′ apart. Pearl-bush	2′–3′	.80
16	Sambucus canadensis, 1 plant; Elderberry	2′–3′	.25
17	Spiraea Vanhouttei, 9 plants, 3′ apart. Van Houtte's Spiraea	2′–3′	2.25
18	Spiraea prunifolia, 2 plants, specimens	3′–4′	1.00
19	Lonicera tatarica rosea, 2 plants 4′ apart. Pink-flowered Bush-honeysuckle	2′–3′	.50
20	Amelanchier botryapium, 3 plants, 3′ apart Shadbush or Juneberry	2′–3′	.75
21	Rose Harison's Yellow, 1 plant	2′	.35
	HERBACEOUS PLANTS		
22	Narcissus Trumpet Major, 25 bulbs 5″–6″ apart. Large deep yellow Trumpet-daffodil, April and May		1.25
23	Darwin Tulip Edmee, 25 bulbs, 5″–6″ apart. Vivid cherry rose, late May		1.50
24	Iris pallida dalmatica, 20 plants, 12″ apart. Large flowers, soft china gray blue, late May		2.40
25	Peonies, double white, 7 plants, 2½′ apart. Festiva maxima, early; May and June. Couronne d'Or, midseason; June		2.45
26	Papaver orientale Mrs. Perry, 18 plants, 12″ apart. Oriental Poppy, salmon rose, late June and July		3.75
27	Delphinium Gold Medal Hybrids, 15 plants, 1′ apart. Best hybrid Larkspur, June and July		3.10
28	Phlox paniculata, white, 20 plants, 15″ apart. Miss Lingard, early, June and July, pale lavender eye. Etta's Choice, August and September, pure white		2.00
29	Helenium autumnale, 10 plants, 18″ apart. Sneezewort, yellow, September		1.20
30	Nepeta peperita, 10 plants, 12″ apart. Peppermint		1.20
31	Marigolds, tall orange African, seeds (annual)		.10
	Centaurea cyanus, deep blue Cornflower, seeds (annual)		.10
	TOTAL estimated cost of materials		$60.10

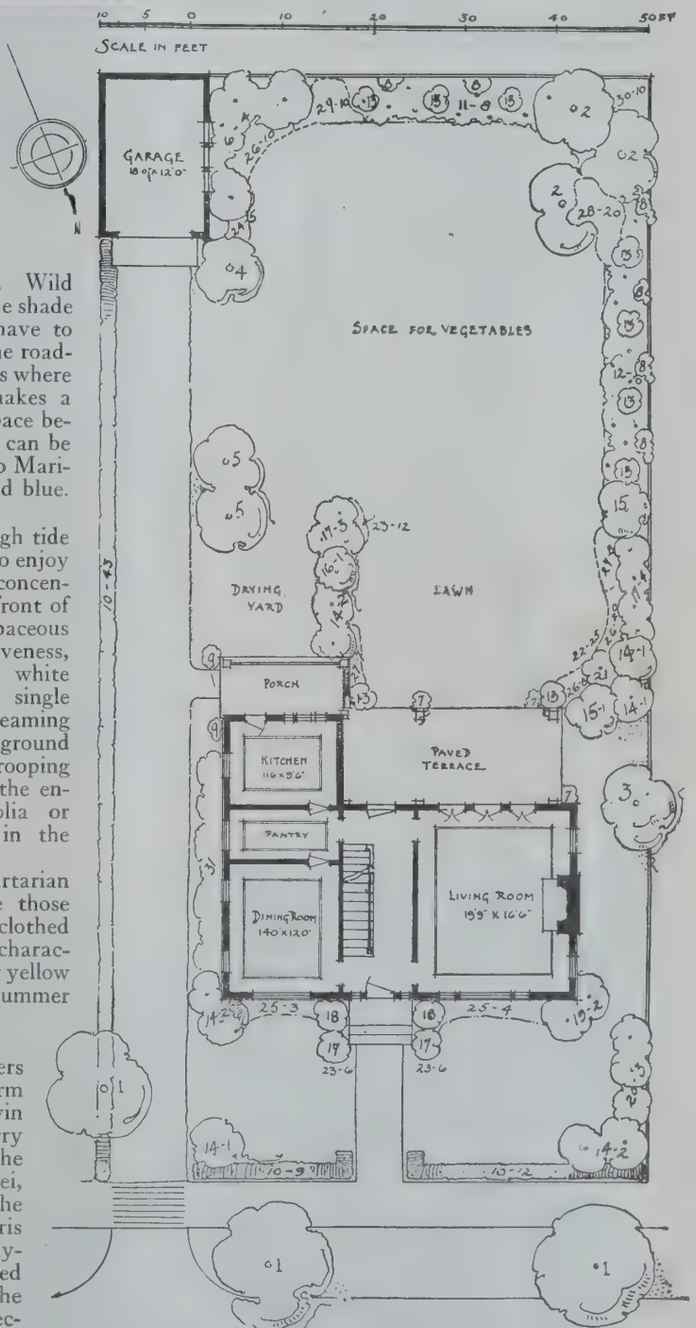
IN LATE May and June "the high tide of the year" is the time for us to enjoy all the flowers we can obtain for concentrated effect near the terrace and front of the house. As a foil to the herbaceous plants as well as for their own effectiveness, we have the shrubs—principally white flowering varieties—hybrid Lilacs single and double, Pearl-bush whose gleaming clusters are arrayed against a background of tender green; the familiar drooping Spiraea Vanhouttei and, guarding the entrance, the taller Spiraea prunifolia or Bridal-wreath, later on glorious in the autumn red of its foliage.

With these will bloom the pink Tartarian Honeysuckle whose branches, like those of the Pearl-bush, are very early clothed with luxuriant foliage—a charming characteristic in a shrub—and whose red or yellow fruits, though not edible, are in midsummer extremely decorative.

THE advance guard of the flowers for which the shrubs are to form the setting is composed of the Darwin Tulip Edmee which, of deep cherry rose, twinkles and flames against the white cascades of Spiraea Vanhouttei, to be followed very shortly by the large porcelain-blue flowers of the Iris pallida, which, with their broad, gray-green leaves are refreshingly outlined against the silvery-gray foliage of the Eleagnus. And against the same effective background, but a little later in the season, will flash and coruscate the coral-pink petals of the Oriental Poppy. These feature flowers are also seen near the terrace, where are masses of true blue Larkspur and the sulphur-yellow blooms of Harison's Yellow Rose, the whole forming one of the most exquisite combinations possible. To the shady front of the house has been relegated the early and late double white Peonies, whose foliage is attractive even after the flowers have had their day.

If one's patriotism must find expression in the color scheme, try an effect of blue Larkspur, red Oriental Poppies and candidum Lilies, omitting any pink and yellow. Such would be at its height of bloom about the Fourth of July.

Later in the summer, chosen in early and late varieties with the object of prolonging the bloom, is a single large clump of white Phlox, and in the autumn one tall mass of yellow Helenium. Not even the vines are allowed to neglect their duty in this intensive garden. The scarlet Trumpet-creeper comes in midsummer; in the autumn the fences are white with a mantle of Clematis paniculata.



Devoted to stern utility now but planned for the future as a garden of beauty and recreation (See Planting List)

The Entrance to the Small Place By RUTH DEAN

THERE are three definite ways of disposing of the drive on either a small or a large place; and other ways are but amplifications of these. First: the drive which ends in a turn around such as that shown in diagram No. 1. Second: the "horse-shoe" drive. Third: the drive which terminates in a court or yard.

On small places there is little room to conceal the defects which each one of these schemes develops when crowded into a limited space, and what to do with the drive very often resolves itself into a choice of evils. Everyone in these days of plentiful automobiles wants to be delivered at his own door, and the drive is not the negligible factor it was when sixteen foot touring cars were unknown. One finds that the whole of the front yard is to be given over to drive, or else that the only available lawn space must be cut in two, and all there is to do is to minimize the encroachments of the road by grading and planting.

The "turn around" scheme, which admits of more manipulation than the other two, cannot be worked in a space which reduces the inside radius to less than twenty feet. This means that a car can make the turn in a circle whose outside diameter is sixty feet. An ellipse should be eighty feet or more over its long diameter.

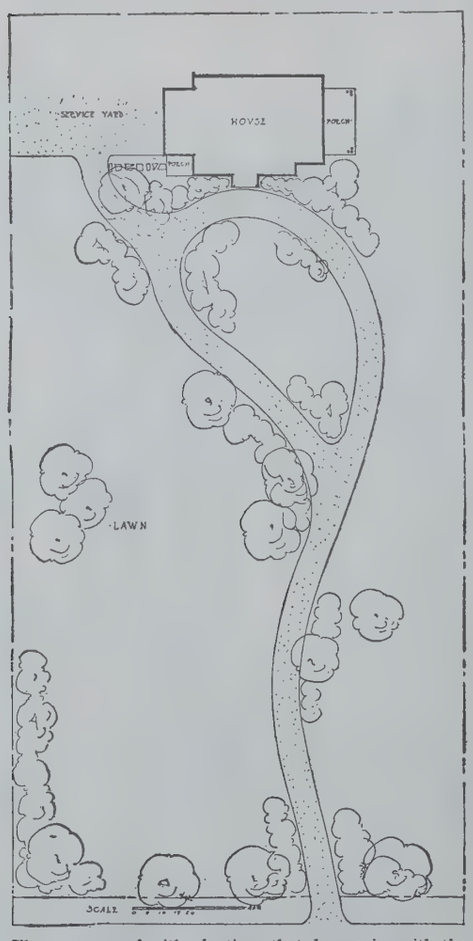
Regular circles and ellipses are almost always objectionable, from the standpoint of art, and luckily one seldom sees them. Trees or rocks or some other irregularity in the surface of the ground usually intervenes to turn the road from an even course, but if these fail they should be introduced into the scheme. The circle, which is too obvious a form to be interesting, and lacks the dignity necessary to make it formal, should be modified and used in frankly naturalistic work with its form concealed by grading up the lawn centre, and by planting.

From the dimensions given above it is plain to see that a house which sits from seventy to one hundred feet back from the road may easily have its entire front yard taken up with road. Sometimes it is not a bad idea to regard this space as one large turn around for in so doing one may gain more unbroken lawn space than in any other way, for instance such a drive as the one shown on diagram No. 4 in which the house is placed one hundred and ten feet from the road, run straight from the gate for twenty-five feet, skirts the property lines and leaves the centre portion free for lawn. Clumps of bushes and trees here and there partly hide the road and wise grading sinks it slightly below the level of the lawn, making it invisible for at least part of its length.

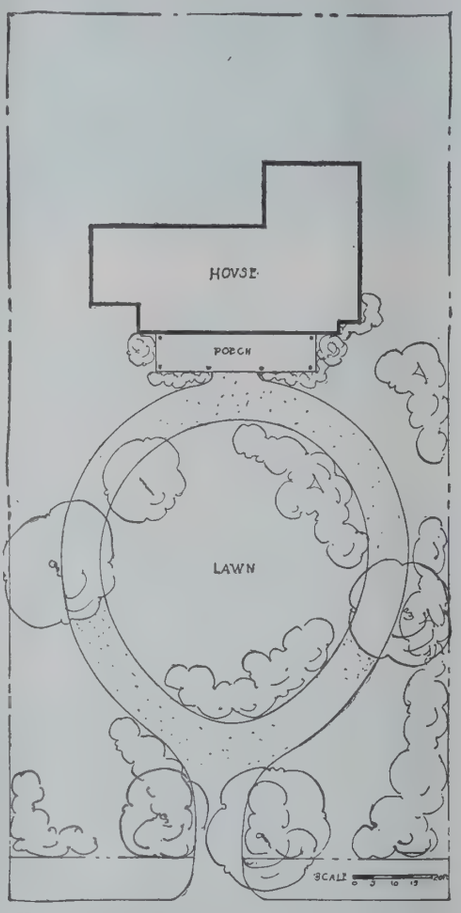
With the house moved up nearer the road this scheme becomes unfeasible and some other kind must take its place. The so called "horse-shoe" drive, one which leads into the grounds only to lead out again directly, is open to the same objection as the circular turn around. It lacks any quality of surprise or mystery to give it interest. Unless it be planted and graded so that one side is partially, if not wholly concealed from the other, it is as dull as the book who's ending is apparent from the beginning. As a means of easy and convenient access to the house it is beyond reproach. It adapts itself to almost any sized place and usually admits of curves easier from the automobilist's standpoint than any other kind of drive, but it reveals all too readily the limits of the grounds, and makes besides, two distinct entrances.

The alternative for this kind of drive is one ending in a yard, sometimes when its size, dignity, and position warrant, called a forecourt. On the small place it must be more often than not, a side or back court, which is service and garage yard as well as turn around. Its great usefulness lies in the fact that it banishes the extent of drive necessary for a turn around, from limited lawn space, at the same time leaving it possible for a car to approach close to the house.

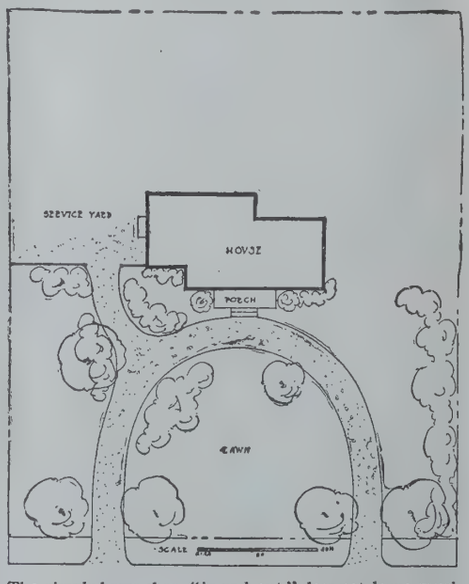
A car can back and turn in a space forty feet square providing it is entirely covered with gravel, that is to say has no centre of grass to be avoided. Such a gravel covered area is not sightly and must be put some place where it can be shut off from view by vine covered trellis



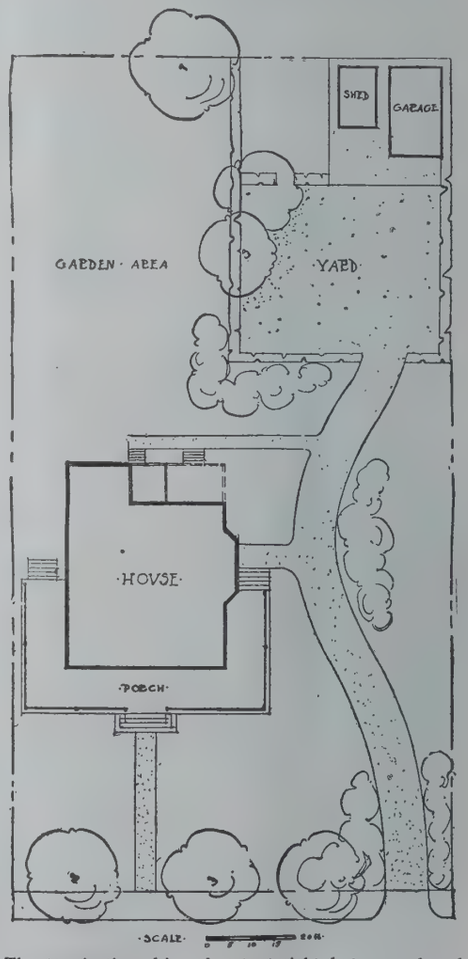
The turn around with plantings that harmonize with the curved line



Here is the simplest turn around drive—it affords a good open lawn space in the centre, yet direct sight is broken by shrubbery



The simple horse-shoe, "in and out" does not leave much scope for the planter except in grades



The terminating drive almost straight but curved and planted to screen the garage doors

SUGGESTED DISPOSAL OF TREES AND MASSING OF SHRUBBERY TO FIT THE DIFFERENT STYLES OF ENTRANCE DRIVEWAY

or bushes. A typical yard of this sort is shown in diagram No. 3 where the drive runs back to a side entrance of the house and then on, to the garage. It is always best to curve such a drive slightly, if possible, so as to give room for planting which shall conceal the yawning doors of the garage from the street. No drive on a small place is without its drawbacks and this one has the very substantial one of compelling all cars to proceed to the garage yard in order to turn around and go out again. This may be less objectionable to the minds of some people than sacrificing the front lawn space or opening it to the street by way of the frank simplicity of a "horse-shoe" shaped drive. One must weigh the unpleasant qualities of each and decide which adapts itself best to the necessities of the individual place, but there is no hidden trick which a landscape architect, however adroit he may be, can produce, to solve the drive puzzle on a small place.

Shrubs and Flowers for the Entrance Garden STEPHEN HAMBLIN

Adaptable Material for the Entrance Plantings—Things That Do Not "Run Away," and Yet Are Good Growers

STRANGE as it may seem, the larger and finer the house and smaller and consequently more valuable per foot the land of a city home the more ordinary and even unkempt the grounds about it. Every city, large or small, has whole streets of fine houses where even neatness, say nothing of beauty and grace, ends with the work of the architect and decorator. And equally, every city has streets where every tiny yard shows careful attention on the part of someone, and is an example of the same expressive taste that we expect within the house walls.

This care for the appearance of the exterior rooms of the house is particularly evident with the homes builded within the last quarter century, even factories add flowers and grass to their outside; but the wonder is that the idea of making the surroundings of a city house beautiful has not taken hold faster than it does. And I am particularly astonished when I see the city homes of people of means, those whose summer homes in the country are praised by the press as models of the garden art, that from the street appear plain dingy, and lead me to wonder whether it is the family or the superintendent of their country estate that is a lover of the beauty of trees and flowers.

ON ONE of the exclusive residence streets of one of our large cities one house has three Chinese Magnolias in the narrow space between the house walls and the street. When these bloom in the spring thousands of passers-by exclaim at the wonder. Yet I don't suppose that other property holders on that street ever think that their lot will grow one equally as well, or a Dogwood, Red-bud, or group of Iris; a round bed of Tulips followed by Geraniums is all that is expected of the soil.

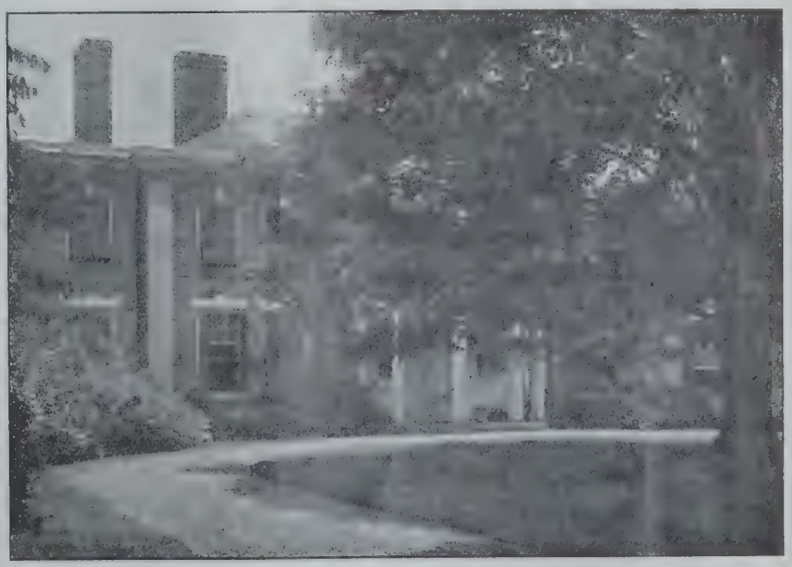
We think that the garden art is for the suburbs and the rural homes, or parks and public gardens in the city, and forget that wherever grass will grow we can have flowers that are as permanent a feature as trees. There is a great deal more to city gardening than setting out plants; but for the present the desire to have them is all that I shall urge. The ways and means and reasons therefore are left for personal solution. But I know one objection to any gardening on a city lot—there is no one to give it any attention. The owner has no time and no experience, the cook, butler, and chauffeur neither experience nor interest to offer, and the man who cuts the grass weekly all along the street has no garden training. And the fact remains that many plants do require considerable attention for *garden* results, and we want no *wild* effects about a city house. Plain smooth lawn is far better than a tangle of weeds and flowers.

So my present contribution to the problem is the idea, that if no one is available to give a city front garden its necessary attention, to have a few touches of color against a background of house wall and green lawn, that such shrubs or herbs be introduced that care for themselves and yet are always tidy. It is not so easy to name these, but we can discover not a few. We read that the Hardy Hydrangea (Hydrangea paniculata grandiflora) is a "common" shrub, and it is very frequent, and why? Because it has, in addition to other obvious characters, the crowning civic virtue of taking care of itself when set in any ordinary soil. And what one plant does, others can do as well.

A well ordered entrance merely means selection of plants that fit, yet many good gardens fail in this detail

THERE will not be any trees planted on the city lot—not when the ground floor of the house is more than one-half the lot area; we get shade, shelter and green of foliage from the trees the city street offers. Our hedge had better be a fence or railing of metal, stone, or wood, as the material of the house

On the left Forsythia as a spring feature of this driveway. Adaptable to much less pretentious places



Only where there is ample space is it wise to plant a tree; but then do so by all means

suggests. A solitary shrub or even two of larger size and a group of smaller ones will be all the woody plants used, and there will probably be no herbs at all—but we shall see! Not in the middle of the rectangular grass plots, but in the corners next the street; near the house walls, unless there are vines upon it; or one on either side of the walk symmetrically spaced as to location in reference to street, walk and house will in general be the spot chosen, but I am suggesting kinds, for arrangement would vary with every site. A mathematical precision in spacing is necessary for practical and esthetic reasons, and to help this effect I want to nominate only such plants as have a reserved way of arranging their roots and branches, and have no bad habits or constitutional disorders.

An evergreen shrub is eminently appropriate, and Box (Buxus sempervirens) has been used by us since the Cavaliers landed at Jamestown. In the North, where Box is not hardy, I suggest the compact forms of Arborvitae (Thuya occidentalis) as pyramidalis, sibirica, or Wareana, Vervaeneana, ericoides, etc., and no colored ones. If you try Rhododendrons or other Heaths you are in for failures. And Dwarf Box and dwarf Arborvitaes, as Tom Thumb and Little Gem, will give the evergreen edging that some front gardens favor. When these have become utterly common all along the street we shall have discovered others to use.

If the Magnolias are too big for the front yard perhaps they can be used as street trees, as at Rochester, New York

FOR large shrubs, say ten feet high and as wide, for bloom I suggest, first of all for early spring Fortune's Golden-bell (Forsythia suspensa Fortunei) or Hybrid Golden-bell (F. intermedia), for neither you nor the nurseryman can tell them apart. You don't want Weeping Golden-bell (F. suspensa) for it falls upon the lawn; you want a plant that is very erect. When Golden-bell is about ten times as common in city lots as it is now we shall urge for variety in early spring the use of Flowering Currant (Ribes aureum) for its spicy fragrance, or Lonicera Standishii or L. fragrantissima, for though the pale yellow flowers are not as brilliant they have a delicate fragrance.

Weigela gives its pink, red or white flowers even in the shade of big trees, but does far better in the open

IN JUNE, if I can have but one shrub in my little lot, I look from Weigela (Diervilla hybrida) in white and all shades of red and rose, to Mock-orange (Philadelphus coronarius) with its fragrant creamy white flowers, and I think of Van Houtte's Spirea (Spiraea Vanhouttei) whose wreaths of white have just passed. Either of the three will satisfy me and require no attention from me, but I hope they will not grow to

Spiraea Vanhouttei is a wonderfully useful shrub as specimen or hedge in shade or sun

be too large for their place. On account of size I must omit Lilacs, but I might arrange with my neighbor to set one on the property line where we both could enjoy it.

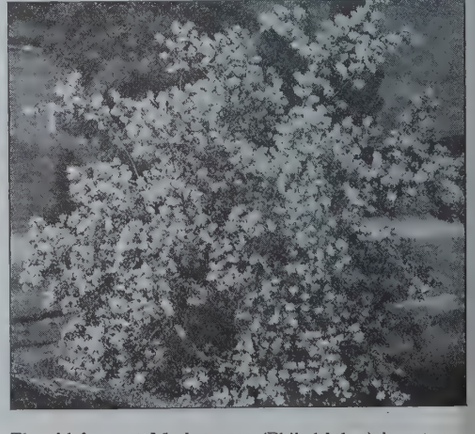
IF THE family is away in midsummer we might as well omit the customary Hydrangea, or if you must have it, substitute the type form (Hydrangea paniculata) that has more graceful open spires of flowers.

Then for bloom in September we would prefer the old-fashioned Althea (Hibiscus syriacus) in white or clear pink, single or double. With the thought of bright winter berries I'd like a Barberry, not the Common Barberry (Berberis vulgaris) for it gets too large and the fruit has no bright color in winter, but B. Regeliana, which is a tall Japanese Barberry and keeps its coral berries until spring; or I'll have a High-bush Cranberry, not the common sort from Europe that every nurseryman has (Viburnum Opulus), for its fruit is not plentiful and the leaves curl with green lice, but the American species (V. americanum) which is loaded with coral beads from October to March.

Of all these large shrubs remember that you can have but one or two, so you must decide whether you want the show in April, June, September, or December. Each is as permanent as the house furniture, requires no repairs, and slowly enlarges from year to year. But you may have room for a half-dozen smaller shrubs, some that never exceed five feet in height. We might pick from the following—Spiraea Thunbergii, Philadelphus Avalanche, etc., Deutzia Lemoinei, Spiraea Douglasii, Hypericum Kalmianum, and Japanese Barberry (Berberis Thunbergii) or better some of the new ones, as B. stenophylla, B. sinensis, B. dictophylla, B. koreana, etc., if only you can buy them.

FOR low edging to the beds, or the edges of the walks, we can use Dwarf High-bush Cranberry (Viburnum Opulus nanum) or Dwarf Mountain Currant (Ribes alpinum nanum), but as they are deciduous and nearly off duty in winter, some of the stiff herbs will do fully as well and furnish flowers also.

NOW the herbs that we shall use will not be many; we do not want a whole flower garden, but merely the suggestion of one. Plan so that the shrubs and the few herbs by their flowers shall assist one another; your Forsythia should have summer-blooming herbs near it; the Hydrangea was preceded by a group of Peonies. But, after all, the flowers on the herbs are only incidental, the foliage and tidy habits of growth, as well as great length of life, are the



The old fragrant Mock-orange (Philadelphus) is not surpassed as a shrub for lawn or mass planting

supremely important things to consider, for though we enjoy them most when they are in bloom they must be "dressed for company" from spring to frost, always presentable, though not in flower. Remember that the soil is none too good to start with, that nobody will care for them, even to cut away dead leaves, that daily sun will be but a few hours, and dust of travel will settle on them. Of the host of herbs that a big garden or a nursery catalogue may contain, I check off the following score or so as eminently fitted for the position as assistants in my city front yard and from each group but a few can be elected, but with thousands of little bulbs beneath them to crowd the idea of spring.

Bushy like a small shrub, and used as such:

Blue Indigo (Baptisia australis) 3-4 ft., blue flowers in June like a Lupine, but the foliage stays.

Gas-plant (Dictamnus albus) 3 feet, white better than rose, and shining permanent foliage.

Garden Peony (Paeonia albiflora) 2-3 ft., use the older sorts that are compact in habit.

Slender and used to fill out shrub groups:

Great Turkey Flag (Iris pallida) 4 ft., best "German" Iris, and foliage very enduring.

Siberian Iris (I. sibirica) 3 ft., the best narrow-leaf Iris, all forms equally good, also I. sanguinea.

June Lily (Lilium elegans) 2 ft., the flat-clustered Lily in June, dark orange-red. Stems soon wither.

Tiger Lily (L. tigrinum) 3-6 ft., the most enduring of garden Lilies, foliage scant, so hide the stems through the shrubs. July.

Henry's Orange Lily (L. Henryi) 3-6 ft., as enduring as Tiger Lily, of better color, and later. August. Foliage *stays*.

Late Lemon Lily (Hemerocallis Thunbergii) 3 ft., forms true clumps, good companion for Siberian Iris. July.

Little bulbs to push up in early spring under shrubs and herbs (to be planted in fall):

Two-leaved Squill (Scilla bifolia); flowers in spike, deep blue, also white; March; earliest blue bulb.

Siberian Squill (S. sibirica); flowers fewer, larger and appear for longer season; bright blue, also white.

Garden Crocus (Crocus vernus); pure white and dark purple most effective. Other spring species also good.

Yellow Crocus (C. moesaicus) best yellow species, blooms with others.

Common Snowdrop (Galanthus nivalis). March. Other sorts have larger leaves and flowers, but this stands abuse.

Spring Meadow-saffron (Bulbocodium vernum). Rosy-purple in March, effect of Crocus, but close to the ground.

Autumn Crocus (Crocus speciosus, C. zonatus, C. sativus, etc.) for Crocus effect in October; plant in August and let alone.

Meadow-saffron (Colchicum autumnale) in variety, for Crocus effect in September; several similar species.

Dense and round, a solitary plant sufficient, as accent:

Thread-lily (Yucca filamentosa) leaves stiff and evergreen, just as well if it does not bloom.

White Day-lily (Hosta plantaginea, or Funkia subcordata) for clumps of broad green leaves; flowers white. July.

Siebold's Day-lily (H. Sieboldii, or F. Sieboldii) foliage like above, but blue-green; flowers pale blue, hidden. July.

Fortune's Day-lily (Hemerocallis Fortunei,) leaves like Siebold's, but narrower, and spikes of flowers well above foliage; light blue. July.

Blue Day-lily (H. caerulea or ovata) leaves smaller, broad, light green; commonest sort; flowers lilac. July.

Lance-leaf Day-lily (H. lancifolia) leaves narrow, flowers lilac. August and September; smallest species.

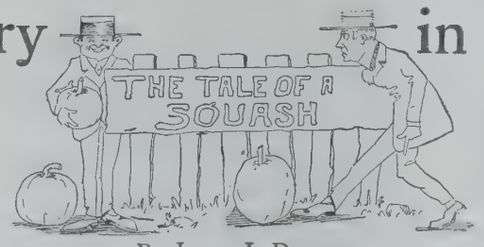
Low and used as edging to other plantings, or along edge of walk or fence:

Japanese Spurge (Pachysandra terminalis), for dark green foliage, no showy flowers but leaves evergreen. Ground cover.

Scotch Pink (Dianthus plumarius) for fragrant flowers and narrow evergreen bluish foliage. Get compact old-fashioned sorts.

Myrtle (Vinca minor) evergreen, as ground cover under all shrubs where grass refuses.

A Little Artistry in a Little Garden



By Luke J. Doogue

I MADE a little vegetable plot in my two by twice back yard last season. It was, according to plan to be one of those somewhat "different" affairs, a sort of mingling of art and practicality. I was to furnish the artistic touch and the vegetables were to come strong on the practical side. To insure the success of such a venture I figured that, if flowers and grass patches were mingled, the effect would be so novel and appealing that the plebeian vegetables could be induced to do their prettiest in the way of production of quantity and quality.

The sentiment was a pretty one and the more I visualized the average vegetable garden the more convinced did I become that I was contributing to the gaiety of nations by attempting my floro-vegeto advance gardening stunt. Fine business, thought I, and I went about to do the deed. I first made paths and I edged these with carrots. This was for effect rather than for the crop. In some places I sowed beets right behind the carrots. Art again. Did you ever see carrots and beets growing together? Humph!

The pole beans held forth at the back of the lot and I gave them room enough to allow me to put a Tobacco plant between each two poles. Don't sniff! If you ever saw Nicotiana affinis doing business under favorable conditions you would change your mind.

Asters between the tomatoes! I did it by treating the tomatoes to a stunt that I learned from a very wise man. Says he to me—"When you grow tomatoes slice off all the leaves but a few sap lifters." And says I, "I'll do it." And I did it. And by doing it found room to place Asters between the plants. Art again. White Asters only.

And so we progressed. I positively ached in my impatience—to speed the warm weather I yearned.

You know, that now that it's all over, I attribute some of my disappointments to this over yearning business I indulged in. Sentiment in dealing with vegetables is fine stuff after you have gathered your crops. But to come through strong, me for cutting out poetic flights in the future. Whoa Bill! I've gathered my crops before I planted them.

Come back to the spring again and let's sow more seed and put out more plants. I got as far as the Asters among the tomats. On the outskirts of the patch Castor Beans. By the way did you know that the Government is willing to buy all the castor oil beans that you can find? Sure!! Nasturtiums—tall for the fence, low growing where there was a chance. More art. Some plants of Kochia (Burning Bush), Petunias, Cosmos, Verbenas. Any vegetables? Why sure. (Remember that while I have rattled off this great list of flowering plants they were used delicately; that's it, *delicately*.) Pole beans, bush beans, tomatoes, carrots, beets, chard. No rough neck stuff. No turnips, cabbage, pumpkins, squash——

I said there was no squash but I want to correct that. . . There was squash, in fact there was a lot of it. In fact—but that's another tale, and a sorry one.

I had just reached a state when I felt assured that my idea of an artistic vegetable-flower combination was what the world needed and as I cast my eyes over the luxuriance bursting forth and welling over I figuratively "blew up," consumed by the thought of the glory in store when the Autumn days were upon us.

But joy killers, like flies, are always with us. I know that the average boy lacks sentiment. I went on a vacation and left one in charge of my garden. I vacationed for three weeks. Like the cat, I came back.

When I looked at my garden did I smile? Was I elated?

I was not!

Squash! Here, there and everywhere! Plastered over the landscape, luxurious in its golden barbaric splendor. The boy was gone. Faded.

While he lapsed in attention to duty through some mysterious agency an evil hand had strewn squash seeds into my vegetable patch and the selfsame seeds waxed strong and throttled everything in sight.

"Punk" was what I said. I am really glad that I wasn't in my normal condition for if so possibilities were horrible to contemplate. But that wasn't the whole story. Troubles, like bananas, come in bunches.

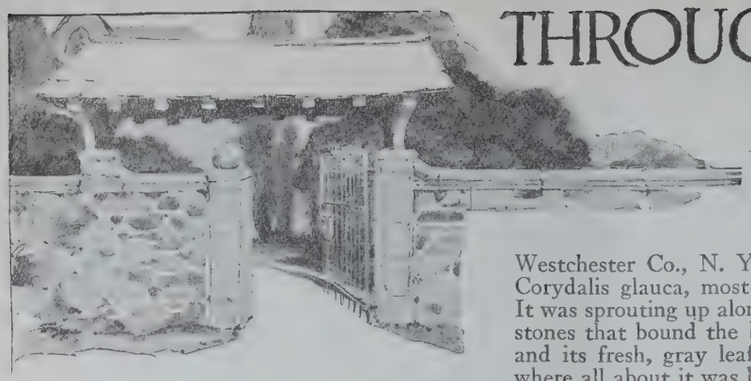
When I followed the trend of the vines I saw they had gone over the fence and under the fence into my neighbor's yard. He was away and the process of obliteration was going on gloriously. My grief was softened when I saw this.

The biblical injunction about loving every man as your brother didn't apply here. Therefore I rejoiced to see the myriads of golden flowers that carpeted his flower garden in hun-like destruction. Sure thing your sins find you out!

Having demonstrated the fact that flowers and vegetables mix well, in a growing state, I closed up shop and went into the country. While there the mean thought of what the squash was doing to my neighbor's garden added merriment to my outing.

The chill of autumn had come upon us and the cider mills were working overtime when I returned home. "Piffle" and "gadsooks" thrice over. When I went into my garden I met a sight that staggered me. That's why I said "Piffle" and "gadsooks"—special anathemas for desperate occasions.

There stood my neighbor sneering at me in a sidelong glance while his children helped him tote into the house the total of eight large Hubbard squashes. *I got none.*



THROUGH THE GARDEN GATE

By Louise B. Wilder

Author of "My Garden" and "Colour in My Garden"

Out of the snow snowdrops,
Out of Death comes Life.
—*David Gray*

PEACE!

Back through the garden gate! This is joyful summons to those of us who marched out at our country's call two years ago and turned our steps into the straight and narrow paths between rows of vegetables, or betook ourselves to walks of industry far from the flower-strewn ways, winding and sweet, wherein it had been our happy privilege to spend our days. Gladly we went forth to bear our part in the great enterprise and thankfully we return to make ready our gardens for the country-wide festival of flowers which shall bear testimony to our heart-felt relief that War is back on the other side of Winter and that before us lies Spring and Peace.

Surely never before have we been so ready to open our hearts to the "vital, hopeful rapture" held out to us by the Young Year and surely never before has it been so plainly our duty to give this rapture happy expression. For a gardener, to express himself adequately is to add unto his possessions a tree or shrub, to consign seeds to the earth, to plant flowers and again to plant flowers.

Across the sea upon the battle fields of France and Belgium and throughout the devastated lands Nature is proudly drawing across her torn and wasted breast a garment of fresh verdure and smiling flowers that the signs of war be blotted out. So shall we here strive to make of the Home Land so glad and beautiful a place that the men who come back to us will forget what they have seen of horror and evil and suffering. This is not a sentimental idea; it is as plainly practical and important as any occupation that has engaged us during the period of the war! The gaiety of flowers never jars upon the most sensitive condition of mind and they constantly suggest freshness and renewal. There is ample testimony too, to their soothing effect upon the men suffering from shell shock or otherwise worn and broken by their terrible experiences.

And then, as Mr. Barron told us in December, a new period is opening to American horticulture and each should seek to make his part in it a worthy one. Let us realize that gardening is at once an exact science and a high art and should not be treated as a haphazard pastime. The very best that is in us is not too much to dedicate to its pursuance.

For myself, I am glad that the snow lies deep upon the garden; glad that no dear, audacious green thing thrusts through the mold to enchain my attention, that no bud of tree or shrub rends its winter jacket in warning of Spring's approach. I need time to adjust myself to the new order; time to study the catalogues more attentively than ever before, to go over my hasty notes of the past two busy years and to make and remake lists and plans to create a beauteousness within my garden walls such as has never before shown there. Winter should be to the gardener what it is to the plants themselves—a time of rest and preparation.

THE PALE CORYDAL.

Last autumn I saw in a hill-side garden in Westchester Co., N. Y., this fine little native, Corydalis glauca, most delightfully naturalized. It was sprouting up along the paths, between the stones that bound the borders, in the rose bed, and its fresh, gray leafage was most attractive where all about it was brown and flowerless. It is at home in rocky woods where the soil is cool and rich, but apparently takes up its quarters easily where stones and some shade are provided. Its blossoms are tiny sacs hung upside down and smartly tipped with yellow and its leaves are pale gray, delicately divided into finely-cut leaflets. It blossoms throughout the greater part of the season and is quite worthy a place in any rock garden.

It belongs to the same engaging family as the Bleeding Hearts, Squirrel Corn, Dutchman's breeches and Fumatory, and though an annual or perhaps a biennial, sows itself freely and is quite hardy.

BRIGHT STEMS.

We take little notice of the stems of trees or shrubs during the flowery months but now when the earth is white or brown and the branches leafless, one's eye is alert for color wherever it may be found. Here is a list of gay or otherwise conspicuous stems that I have noted this winter growing wild or in gardens:

Betula populifolia (White Birch) silver-white, Native.
" alba (European White Birch) silvery.
Fagus americana (American Beech) gray. Natica.
Cornus alternifolia (Panicled Dogwood) bright green. Native.
" alba (Siberian Dogwood) red.
" asperifolia, Warm reddish-brown. Native.
" stolonifera (Red Osier) dark red. Native.
" sanguinia (European Red Osier) red-purple.
" Amomum, purple. Native.
" racemosa (C. paniculata) gray. Native.
Salix vitilina aurea (Golden Willow) orange. Native.
" " Britzensis, reddish.
" purpurea (Purple Osier) purple.
" babylonica (Weeping Willow) warm olive.
Ilex verticillata (Black Alder) clouded gray, Native. ("With coral beads the prim black alders shine").
Kerria japonica (Jew's Mallow) bright green.
Rubus odoratus (Purple-flowering Raspberry) purplish. Native.
" occidentalis (Black Raspberry) Plum-color with whitish bloom.
Comptonia peregrina (Sweet Fern) Copper-brown. Native.
Benzoin aestivale (Spice Bush) warm grayish-brown.

It is so pleasant to meet with these warm-colored trees and shrubs in walking about the country that it is a wonder we do not make more use of them about our homes to "cheer the ungenial day."

A FALL-FLOWERING IRIS.

I should be interested to hear of the experience of any one with Iris lurida. With me it blooms twice during the year; once in May and once in October and I have not heard of its behaving thus anywhere else. Neither Iris books nor Iris catalogues known to me mention it and I should think if so valuable and unusual a characteristic were common to any Iris attention would certainly be drawn to it. An Iris flower after the month of July is most uncommon and if my plants are peculiar in this respect I should like to know it. Mr. W. Richardson Dykes, the Iris expert in a note recently seen, mentions a Hungarian form of I. aphylla as always flowering twice (in May and again in August) and also a hybrid of I. Chamaeiris and I. trojana but the habit even in his wide acquaintance among Irises is evidently unusual and he makes no mention of I. lurida.

I know that an Iris whose regular blossoming is interrupted by its being moved or by some other disturbance, will often give a flower or two at a later season; but with I. lurida the habit is a fixed one, my plants having been in the same place for at least eight years and the October display has never failed. The late flowering is quite as free as the earlier one, that is, the plants are well set over with dark plum-color buds but in October these are sometimes frozen before they fully expand.

Iris lurida is a member of the Bearded Group of Irises and is, according to Mr. Irwin Lynch, very close to I. sambucina and I. squalens. It is, however, quite without the fine perfume of the first and is considerably dwarfer than either. The flowers scarcely overtop the leaves. The standards are a bright plum color with copper lights and the falls are a darker, duller shade. The stem is three or four headed and the spathe three flowered. It is a very handsome and easily grown Iris for the front of the border. With me it grows luxuriantly in a dry situation and is one of my favorite Irises. It would be interesting to hear if there are any other Irises with the fall-flowering habit.

ANNUALS FOR THE ROCK GARDEN.

Rock gardeners are as a rule, I find, rather sniffy about annuals. One seldom hears them mentioned in circles where mountain plants are discussed and even the best books on the subject give us no suggestions as to the utilization of this valuable class of plants. Perhaps it is argued that things so ephemeral as annuals and so enduring as rocks are out of place in each other's company, but the fact is that they are as indispensable there as elsewhere. Casualties occur in the rock garden for the same reasons as in the level borders and the rock plant is far less easily replaced than the ordinary hardy perennial. Then too the blossoming of the majority of mountain plants is a most fleeting affair; a moment of vivid beauty and then a serene greenness or grayness for the rest of the year; and as the festal season of most of them is in spring or early summer, there is little to reward the eye in search of a gay snatch of color after June, save for certain of the Campanulas and a few such constant bloomers as Vitidenia triloba and Tunica saxifraga.

Of course to sow such every-day dwarf annuals as Sweet Alyssum, Candytuft, or French Marigolds in the rock garden would not seem at all fitting. They must have other qualities than mere dwarfness to recommend them for these high circles. But there are numerous small annuals, compactly tufted or circumspectly creeping, that have quite a proper "Alpine air" that should certainly be used to brighten our rock gardens in late summer and to refurnish the corner of some dear departed or the resting place of small Tulip or Daffodil. A list follows:

One of the prettiest of these is *Gypsophila muralis*, whose greenery is of the lightest and most feathery character and whose blossoming is like a tiny sunset cloud. I have had it serenely flowering in chinks between stones long after its more hardy appearing companions had been sent to rest by the frost. Its seed is perfectly hardy so there it is year after year with no trouble at all to me. Its height is about four inches.—*Sedum coeruleum*, with all the characteristics of its important family in miniature, is another of great charm. Its height in my garden is about four inches and its pale lilac-blue blossoms are produced over a long period. Poor soil and full sun.—*Ionopsidium acaule*, the dainty Violet Cress with pale violet-tinted blossoms is a mite of about two inches that thrives best in shade or where it will not suffer from drought. Its seed is hardy and it blooms a few weeks from the time of sowing.—*Campanula attica* has all the charm of its lovely race, a height of three inches and blue or white blossoms. Full sun or half shade.—*Kaulfussia amelloides* (Charieis heterophylla) is a small South African bearing lavender Daisies with a warm purple disc.—*Veronica glauca* is a lovely little four inch plant from Greece with bright blue flowers.—*Abronia umbellata* (Sand Verbena). This is a perennial too tender for our climate but blooms the first year from seed if sown early. It is a graceful, lax trailer with heads of lavender-pink blossoms with the fragrance of vanilla. Poor soil and sun.—*Grammanthes gentianoides*. A little three inch annual with bright orange colored flowers. Full sun. *Limnanthus Douglasii*. A charming California poppywort with slender half trailing stems carrying frail yellow "poppies."—*Eschscholtzia tenuifolia*. Primrose colored blossoms and gray leaves.—*Leptosiphon densiflorus hybridus* is four inches high and bears small brilliant blossoms over a long period. Half shade.—*Silene pendula bijou* makes a stout little tuft and bears bright pink blossoms over a long season.—*Saponaria calabrica* is another pink flowered annual of half trailing habit. Bright sun and ordinary soil.—*Sanvitalia procumbens* is a stout little trailer with tiny sunflower-like blooms produced in great profusion. Full sun.—Other annuals suited to this use are various diminutive *Gilias*, *Nemesia Blue Gem*, *Mesembryanthemum tricolor*, *Anagallis linifolia* and *A. Brewerit*, *Nemophila insignis*, (shade), *Asperula azurea setosa* and *Platystemon californicus* (Cream Cups).

The Garden of My Dreams

E. L. MARYLAND

How it Gradually Took Shape and What I Learned by Experience that Beginners May Now Benefit by

IT HAS taken me nine years to make my garden what it now is, and as at last I am just beginning to feel satisfied perhaps the result of my struggles will be of some use to other would-be gardeners who don't know how to begin. In the beginning I did not use much common sense, and made the design myself, which was a great mistake at the time, so different from now, when the magazines are full of suggestions, and plans that may be copied. Good luck was with me, however, for my little design proved to be successful in the long run.

Years were wasted groping about in the dark, as it were; for I did not know what to plant, nor how to plant it. My idea was to search the catalogues for perennials and annuals both seeds and plants, and I bought them all, I do believe. How often have I wished my money back, and the time! it has slipped away from me never to return.

I saw pictures with the spring flowering bulbs in bloom, with the herbaceous plants pushing up between them, to bloom later—they looked so lovely that I planted mine in the same way. They were all right while blooming, but what could I do with the ugly yellowing stems that were left behind? And in the autumn I would forget and dig up the poor bulbs and sometimes cut them with my spade.

One day I stumbled across Miss Jekyl's "Colour in the Flower Garden" and read her suggestions that bulbs must be planted in a place to themselves, a spring garden. I quite agree with her about them, and about everything else she has written about flowers, for hers is a master mind where gardens are concerned, and now I follow her lead as much as I can. But her English climate is so different from ours, and her plants blossom at such different times, that it is not practical to make the same combinations and I have had to work out problems for myself.

But my all is crowded into a small space about sixty by forty feet and it is a problem to keep it full of color during the growing months—I have not the space nor the means to have separate gardens for each season. But it's fun striving to reach perfection. I haven't found a resting place yet for my Spring Garden, but I have stolen a corner from my practical husband's potato patch for a nursery that was badly needed; there I have my baby perennials growing away to be used when needed, and for cut flowers, and rows of annuals, and Dahlias, and Roses.

THE accompanying plan is just one fourth of the child of my brain. There are four centre beds, paths between and around them, the corners and sides form one big bed. Two sides are edged with a tall clipped hedge of Norway Spruce, which I never would have planted but it was already there. An arch at the entrance has a Dorothy Perkins Rose at the foot of each side, and shrubs divide the garden from the lawn. Just inside the arch is planted on each side a group of Yucca flaccida (also known as Yucca filamentosa). They are a little way back from the path and the intervening space is filled in with the woolly leaved Stachys lantana. I am always hoping my Yuccas will bloom with the Roses, but so far they haven't exerted themselves. But that is my own fault, for I have moved them about too much. Now that they have found a permanent home great things are expected from them. Just back of them are some Hydrangea paniculata grandiflora, trimmed back each year to keep them the proper height, and two or three plants of Gypsophila paniculata to give that misty appearance that is so bewitching.

The arch with the Roses blooming upon it

My beds are edged with Dwarf Box, kept clipped, and behind it everything is planted in lines or singly, the plants can be crowded so much better in this way. Half the garden is devoted to pink and red flowers, the other half to blue and yellow with as much white as I can squeeze in everywhere. This is the simplest way to avoid color discords. I plant closely, to keep the weeds down, and many of the early bloomers can be pulled up to make way for the others, put out in the vegetable rows, and re-set in their places in the autumn.

The Sweet Williams are very beautiful; they and the Clove-scented Pinks I use in long lines just back of the Box. The plants can be pulled to pieces after blooming for two or three years, and each little slip that has roots to it planted again. Nearly all the perennials need renewing every few years either in this way or by raising young plants from seeds. They will not grow on indefinitely. Who can resist putting Foxgloves behind the Sweet Williams, they always bloom together and rarely disappoint.

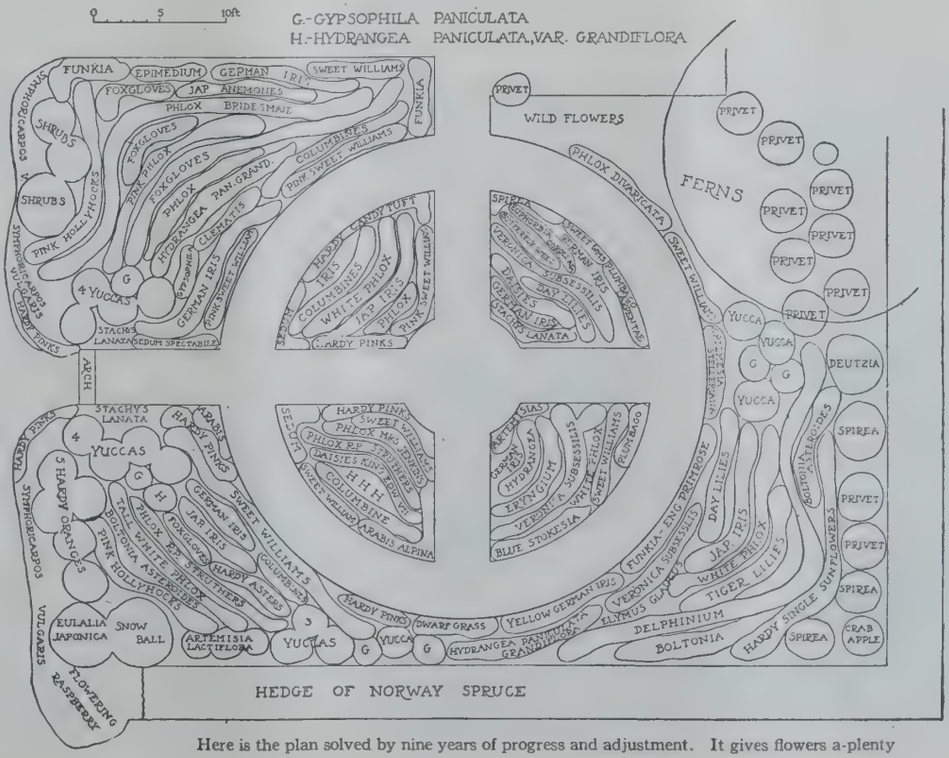
The spring comes with the Primroses, soon to be covered with the great leaves of Funkia Sieboldiana, and Funkia subcordata grandiflora, and then follow in quick succession Irises, Sweet Williams, Foxgloves, Clove-scented Pinks, Canterbury Bells, Delphiniums, Yuccas, and Yellow Day-lilies, Daisies, the gorgeous Phloxes, Veronica longifolia subsessilis, Asclepias tuberosa, Hollyhocks and Boltonia asteroides, hardy Sunflowers, hardy Asters and a few others, giving me wonderful color all summer long.

THOSE who don't know the intricacies of garden material should begin with the old standbys just named, and never try anything new in the garden without first becoming acquainted with it in the nursery. I have banished Peonies to the nursery as their season of bloom is short and really I have not the room for them. All the annuals excepting a few Nasturtiums, Sweet Alyssum, Ageratum, and Petunias both the pink and the white, useful for filling in any bare spaces which occur are also in the nursery. I have wasted much time by planting annuals in the flower garden, now they grow in rows with the vegetables where they can have all the room they need and a weekly cultivation.

I think too that this is the only way to plant Roses, Dahlias and the Hardy Chrysanthemums—they must have plenty of room and be cultivated frequently.

MAKING combinations of two kinds of flowers for bouquets for the house is a great delight. These combinations are lovely: Spirea Vanhouttei and the early dark purple Iris; the large double Sunflowers and white Boltonia asteroides; Euphorbia corollata with Marigolds or with scarlet Zinnias; Celosia plumosa and Clematis paniculata; Butterfly-weed and Veronica longifolia subsessilis.

AFTER all it is not difficult to learn what shrubs to use, as near the large towns there is so much suburban development that one can go and see a great variety of growing shrubs that were planted by experts. I have no perennials in front of my shrubs, for I like to see their branches sweeping down over the green sod, and many of them are beautiful in winter when other planting would spoil their appearance. Those which bear fruits are my favorites. I don't believe there is a more magnificent shrub growing than the Japanese Berberis, in the



Here is the plan solved by nine years of progress and adjustment. It gives flowers a-plenty

spring with its tender green leaves which turn a beautiful scarlet in the autumn, and its berries! how wonderful they are. I often wish for a steep bank so I could clothe it with Rosa multiflora, Celastrus scandens, and Yucca with the Japanese Barberry as peacemaker.

I have the large shrubs planted singly or in groups of two or three with the smaller ones at their feet. The tall ones that include Viburnum Opulus plicatum, and V. lantana, Crataegus coccinea, and Lonicera tatarica; the Rosa rugosa, Rhodotypos kerrioides, Eleagnus longipes, Clethra alnifolia, Rosa setigera, dwarf Philadelphus are the shorter ones I like best. Though I like to have the soil well prepared for shrubs, as for the herbaceous plants, I cannot dig out two feet of earth as some advise, for that is far too expensive. So I mark off my bed first with the aid of a garden line and some small stakes, after that I have the man remove the sod and spade the ground as deeply as he can, using the mattock where necessary, then he covers the bed with as much manure as I can get—I have never yet had enough—he spades this in, and then I mark the places for the holes with stakes, which should be from three to six feet apart according to the size of the shrub. The holes are made about a foot and half deep, with the sod and plenty of manure in the bottom. I always prepare the bed long before needed, and before my order is given, so I can know just what I want and the correct number of each.

Don't, please don't buy a hundred miscellaneous shrubs, not knowing what you will get, just because they are cheap. Show your friends that you have a brain and know how to use it.

Building the Garden Plan on a Unit Basis

F. F. ROCKWELL

Fully Meeting the Family Needs, Not Just Big Crops the Object

MANY, very many, gardeners go astray at the first step in the belief that the chief objective in their gardening is growing big crops. They assume that being a "good grower" is synonymous with a "good gardener."

Unless the garden is definitely planned to fill the requirements of the home table, it will be a wasteful, and therefore, a poor garden, no matter how large the yields of the individual vegetables obtained may be. In fact, under such conditions, the bigger the yields, the greater the waste!

The first object in laying out the plan for the garden is, of course, to make it fit as closely as possible the requirements of the *kitchen*. It is not enough to make every square foot yield the maximum amount of vegetables—because every head of lettuce, or bunch of radishes, or quart of beans which is not used, not only does no good, but might better not have been grown at all—since the soil has been robbed of just so much plant food which might have gone to the production of something that could have been used.

Of course, every reader of the GARDEN MAGAZINE is familiar with "succession crops," "companion crops," "inter planting," and so forth. But these things are of *no advantage in themselves*. They are really technical details which unless one knows definitely what he is aiming at, may do far more harm than good in the garden. Infinitely more important than these details is the general arrangement or grouping of the crops. To obtain the maximum *usable returns*.

Foundation of the Garden Plan

INSTEAD of following some "model garden" planned to meet somebody else's requirements the gardener should learn for himself the general principles on which to build his own garden. The arrangement or grouping shown on the accompanying skeleton charts has proved to be, by actual field experiments, an efficient arrangement for the general purpose home garden. There are six main groups or cropping divisions of the vegetable garden which together cover the requirements of the home table throughout the year.

Group 1.—Early Planted Vegetables that May Be Followed by Others

These are grouped together for two reasons. They may be all planted at approximately the same time—on the same day, if necessary and where the garden is small and the gardener's time limited—and they will mature near enough together so that nearly the entire space occupied by them may be cleared off and forked up for replanting at one time. More intensive cultivation is possible by interplanting the second crop—that is by sowing the seed or setting the plants before the first crop is quite used up, so that it is getting a start before the first crop is entirely off the ground. This, however, is more work and it has the serious disadvantage of not allowing as thorough preparation of the soil for the second planting. For convenience in starting the planting of the garden, Group 1 is placed at one end.

Group 2.—Early Planted Vegetables Which Remain the Entire Season

These things are grouped together for the same reason as those in Group 1, They may follow directly after Group 1, but, as a general rule, it is best to put them at the other end of the garden leaving the space in between for succession plantings and for second plantings. Swiss chard, one vegetable in this group which is gathered more frequently during the entire season than any other vegetable, may advantageously be placed near the edge of the garden, where it may be "got at" most readily. Two or three feet of parsley at the end of the Swiss chard row will be found convenient for the same reason (incidentally, parsley is one of the things most generally *over-planted* in the home garden). Under some conditions, it may be advantageous to save the space at the ends of the garden for some vine crops, such as melons, squash, or pie pumpkins, where the vines can run out over the grass. As a general rule, however, it is best to grow the vine crops between rows of corn.

Group 3.—First Succession Planting and Late Planted or Tender Crops

All of the early planted vegetables which may be followed by others rapidly deteriorate in table quality after they reach maturity. For this reason, only small plantings of these things should be made—a sufficient length of row to yield *only what can be used* during the time they will remain in good condition. Succession plantings of these things are made adjacent to the first planting, because some of these, too, will mature in time to be followed by other things, and because in cultural requirements they are more easily cared for when grouped near the first plantings of the same thing. Following these may come the first planting of the tender vegetables, which could not safely be put out when the first planting was done. This means in most localities an interval of four weeks or so between the first and second planting, as indicated by the dates on the skeleton plan.

Group 4.—Second Succession Planting and Crops for Summer and Fall

The space between Group 3 and Group 2 (or between Group 3 and the end of the garden, if Group 2 has been planted next to Group 1), should be utilized for second succession plantings of quick maturing things which will not long remain in condition, and for special late summer and fall crops which do not do well if planted in the spring. (By careful management, some of the space to be occupied by Group 4 may be used for extra early crops planted as soon as the ground can be worked. But it is possible to overdo the policy of "keeping *all* the ground working *all* the time." It is not economy to sow seed merely for the purpose of having the ground occupied, and, unless handled very carefully, it is easier to lose more on the second crop than can be gained on the first).

Group 5.—Crops for Fall and Winter and Last Succession Planting

Group 5 follows as a second planting on the

"SKELETON" CHART SHOWING EFFICIENT GROUPING OF VEGETABLES FOR GENERAL PURPOSE GARDEN

3	
1 Early planted (hardy) vegetables that may be followed by other things. *Apr. 1 to 15*	**5** Crops for fall and winter, and last succession plantings. *July 1 to 15*
3 First succession planting, and late-planted (tender) crops. *May 10 to 25*	**6** Cover crops for winter. *Aug. 1 to Sept. 1*
4 Second succession planting, and crops for summer and fall. *June 10 to 25*	
2 Early planted vegetables to remain all season. *Apr. 1 to 15*	Manured and trenched for winter.

same ground occupied by Groups 1 and 3. Except where the season is very long, it is seldom possible to get a second planting on all of Group 3 in time to mature. It should be the gardener's aim to get a second crop from *as much of this space as possible*. But it is only a waste of time, work and seed to put in second plantings which do not have a reasonable certainty of maturing before hard freezing weather. Where there is any doubt in this respect, it is much better to use the space for the purpose of Group 6.

Group 6.—Cover Crops for Fertility

Not only the quantity of crops you can get from your garden, but the quality also depends largely upon keeping the ground plentifully supplied with *humus*. Every year at least part of the garden—about a third if possible—should be devoted to growing an abundance of some green crop for plowing or spading under, to furnish humus and fertility. In no other way, can the garden so cheaply be kept in an excellent condition. Approximately a third of the garden can be put into cover crops each year by changing the relative positions of the different groups of the vegetables from year to year, and thus establishing a three year "rotation." The entire garden can thus be kept in splendid condition with a great saving in manures and fertilizers. Where space is a controlling factor however this can be ignored and the necessary humus, etc., introduced as direct dressings.

Filling in the Skeleton

OF COURSE, so far, we have not made a "garden planting plan,"—but that is just what I have tried to avoid because it is not possible to make a standard garden plan. No two gardens are of exactly the same size, and, if they are, no two families have exactly the same needs and tastes—but garden plans *can* be *systematized*. And the general plan outlined so far, can be carried in other steps without getting into too much detail. It is possible to fit in to the skeleton chart the different types of vegetables which will give the best results. Then the individual gardener can put in the different quantities and varieties to suit his own needs and tastes. This is what has been done in chart No. 2, which forms the basis for a very efficient garden and yet leaves the gardener free to work out the details.

After filling in the units—*how much of each vegetable do you want?* Here is where the wife comes in—or *should!* She will have some idea as to how many times a week you will want cabbage, or onions or sweet corn and how much will be needed each time.

Figuring Out the Amount of Each Vegetable Needed

TO MAKE the matter clear, let us take a few examples, say cabbage, tomatoes, and lettuce.

Let us suppose that you are fond enough of cabbage to want it on an average of twice a week, and that two heads of extra early cabbage and one head of summer or fall cabbage a meal will be a sufficient quantity. Then you would want about eight cuttings of early cabbage, or sixteen heads. At a foot and a half apart, this would be twenty-four feet of row. Some heads would not mature, but a few would be big enough to do for a single meal in themselves so that one row in a garden thirty-five feet wide would be working on a safe margin.

Tomatoes are useful for so many purposes that you probably would make use of them during a season on an average of once a day—say two quarts of fruit at a time. The middle of July to mid-September, or 60 days. At two quarts to the foot of row, which is a good yield from well cared for plants, you would want approximately 60 feet of row or two rows in a 25 to 35 ft. garden,

UNIT CHART, WITH TYPES OF VEGETABLES AND ORDER OF PLANTING SUGGESTED

3 Pole beans Tomatoes (after radishes and spinach)	
1 Onion sets Peas, early Cabbage, early (plants) Cauliflower, early (plants) Lettuce, early (plants) Beets, early (plants) Lettuce, spring Turnips, early Kohl-rabi Beets, early Carrots, early *Apr. 1 to 15*	**5** Corn, extra early Brussels sprouts Cauliflower Cabbage, winter Beets, Lettuce, fall Turnips Radish, winter *July 1 to 15*
3 Lettuce, spring and main Turnips, early and main Beets, main crop Carrots, main crop Peas, main crop Beans, green pod Beans, wax Beans, dwarf lima Squash, summer Corn, early Melons Corn, medium Cucumbers Okra Egg plant Peppers Celery, early (plants) *May 10 to 25*	**6** Cover crops for green manuring: Rye, Vetch, Crimson clover, etc. *Aug. 1 to Sept. 1*
4 Lettuce, summer Beets, fall and winter Carrots, fall and winter Corn, early Squash, winter Corn, medium Celery, winter (plants) Rutabagas, Witloof chicory Leeks *June 10 to 25*	
2 Parsnip Salsify Onions Swiss chard (or New Zealand spinach) *Apr. 1 to 15.*	Manure and trench for winter. Parsley *Sept. 1 to Oct. 15*

preferably an early and a late variety, one to one and one half dozen plants of each.

Lettuce, considering the season from the middle of May to July, and from the middle of August to October, is a total of 12 weeks. Most varieties under average conditions will not yield good quality heads during a period of more than two weeks. To have a continuous supply, then, one would need to set out plants early in the

This vegetable garden of last year was planned on the unit basis idea of meeting the grower's actual needs

spring, and to sow seeds then, and about a month later. And for fall a summer variety in June, and an early and a late fall variety late in July or in early August. If lettuce is wanted nearly every day during this period, it would take two heads a day for ninety days, or a total of 180 heads. To produce this, assuming that both leaf and head lettuce would be grown, would require about 200 ft. This would mean a maximum of eight 25 ft. rows during the whole season. In most cases, however, six rows would be sufficient.

In similar manner, the number of rows of the different vegetables wanted can be estimated and the chart filled in (Distances between rows, amount of seed required, yields, and other data have been given in numerous tables published in earlier volumes of the GARDEN MAGAZINE).

If the garden area is limited, you will of course have to make adjustments to cut down the less desired things possibly even leaving out altogether the least essential. The matter of varieties is discussed elsewhere. In making selections, remember the important and practical thing is to follow *types* and buy your seeds from that standpoint. Most good varieties are listed by most seedsmen; and the new gardener will do well to stick to the things that have proven satisfactory. It is much more important to plan your garden well than to spend your time hunting for all the latest "novelties."

Light on the Seed Catalogues A. KRUHM

Giving an Inside View of the Available Supplies for the Season. Importance of Considering Types Rather than Mere Names

THE turmoil of the last four years has forcefully taught us to realize that the home vegetable garden is a real factor in the nation's affairs. When we remember that the product of our home gardens helped release the foodstuffs that fed Belgium and France we may well feel proud. But the dawn of 1919 still carries with it both other opportunities and possibilities.

If I thought for one minute that there were, among GARDEN MAGAZINE readers, many who did not themselves, grow most of their fresh, green food I would say "For heaven's sake get in line. Get a rake and a hoe, plant a food garden; if not for your own benefit, then for the sake of the nations." But of necessity our gardens this year must be made in accord with the available supplies, for they are not yet normal, and a little reasonable attention to planning our programme of seed buying sowing and harvest, in the light of exact information on supplies, will be time well spent.

As an example, the gardener who is fond of peas will do well to order seeds *this month;* for, while our armies were marching victoriously against the enemy in Europe, another, a mean enemy at our backdoor, attacked the pea crops at home. Much of what the aphis left, the blight got; and then a drought further curtailed the season's supply of seed. So, if your seedsman says, this year, "I am shy of Gradus, please take World Record" be thankful you are offered a worth while substitute. Marchioness does not perfect as handsome a pod as either Gradus or World Record, but the pods are well filled and there are more of them. To use a commonplace expression: don't be "finnicky" when it comes to peas this year. Be glad there are any at all.

WHILE peas show a record shortage, beans, except in a few isolated instances, are in abundant supply. As a class, the green podded bush beans have not been as productive of a seed crop as their wax podded brothers. Some of the choicer varieties of bush limas—my favorite Fordhook among them—are about as scarce as peas. Bountiful has again been vindicated as the most dependable of the flat green-podded type of bean. But just the same, even if some kinds are more easily obtainable than others, it would be well to husband the seed for we have before us a prospect of several "lean years" in seeds, because of imminent labor shortages.

Swiss chard has come to be recognized as one of the most profitable vegetables

When its handling is understood petsai will be better appreciated. Sow in August and get heads in October

And it is more than ever desirable for the gardener to learn to look upon specific vegetables as representing a *type* or a *class*, and so simplify the problem of selection of varieties from the catalogue of the dealer. For instance, in beans we have the green-podded and the yellow-podded classes. In both there are flat-podded and round-podded kinds or types, and of each several sorts or varieties. The round-podded green companion to Bountiful is Full Measure—a hummer for bearing stringless quality pods.

The duet of green-podded reliables is duplicated among the wax-podded type in Surecrop Stringless (flat-podded), and Brittle Wax (the best representative of the round podded Kidney Wax type). This last named meets all requirements of a round-podded yellow kind, superseding, in a degree, the Dwarf German Black Wax Pencil Pod Wax, etc. Anyway, would any body grow Currie's Wax, Rustproof Wax, Webber Wax, Davis Wax, or even Wardwell, among the flat-podded kinds, when such a wonder as Surecrop Wax is available?

SWEET corn promises to be available in quantities after several seasons of disappointing shortages. The last few years have seen most yellow kinds make good headway in popular favor—most of them, to be sure on the strength of Golden Bantam quality. However, Seymour's Sweet Orange promises to rival Golden Bantam in popularity some day, if not *quite* so early, it is a stronger grower later in the season; Golden Evergreen is bound to replace Stowell's and White Evergreen in the home garden; and Golden Cream will ultimately take the place of Country Gentleman. In the meantime, the customary quantities of Cory, Kendel's, Howling Mob, and Pocahontas will be planted.

ONE definite result from the great war is a proper appreciation of root crops. Beets, carrots, kohlrabi, parsnips, salsify and turnips are enjoying an unprecedented popularity. And, as a result, American-grown seeds of all are now available in quantities to satisfy all demands. Crosby's beet and Detroit Dark Red are of the early type most widely grown, because of eminent satisfaction given everywhere. The late type is fitly represented by Long Blood Red.

Among carrots, the choice of names is great, though selection becomes very simple when you look upon the different kinds representing *types*. There are the short, the half-long, and long kinds and they correspond to early, midseason, and late. The most popular short sort is Oxheart. Both, Chantenay and Danvers are half-long. Half-long Luc is the finest French strain obtainable to-day of the half-long type. The Improved Long Orange is the latest to be ready, and generally appreciated as a dependable winter keeper.

Those who learned to value the turnip-rooted

The home garden wants a medium sized round, smooth fruit freely produced. Bonny Best on Long Island

type of cabbage called kohlrabi will have to be satisfied with White Vienna, since its purple-skinned companion is hardly obtainable—but after all what's the odds, in actual use? Neither parsnips nor salsify offer any difficulty in selection since only two of each are obtainable. Not so in turnips, however. England, the past season, grew an astounding acreage and tons upon tons of all kinds of turnip seed will reach the market from over there. Remember the types—flat, round and elongated. Flat White Milan, Purple Top White Globe and White Egg are dependable standards.

WHILE not strictly a root crop, onions deserve mention here as a profitable crop in the home garden. Again, learn to look upon them in classes and types, each having certain characteristics. As a whole, the white kinds are the earliest and mildest; the yellow kinds are the most *popular*, and the red kinds the latest and best keepers—but also the strongest flavored!

Foreign onions are past history. American grown Danvers Yellow Globe is helping to flavor European soups and stews. And don't forget—Danvers Globe, Ohio Yellow Globe, Rocky Mountain Danvers, Michigan Yellow Globe, etc., are all children of one great race. Three famous onions from Southport, Connecticut, have given that town world-wide fame—the Southport White, Yellow and Red Globes. They are the acme of American standards in onions.

RADISHES always will be *the* tempting spring delicacy of the home garden. There is absolutely no reason why they should not be a "year around" vegetable by growing only those specific types that fit the seasons, viz: spring, summer, and fall, and others for winter.

The Button, or earliest, radishes are useful only for spring work. Scarlet Globe, Rosy Gem and French Breakfast are the champions in this type. The longer sorts last longer before becoming spongy, but require longer to get ready. In order of their appearance on the table of this type, I recommend Icicle, Long Scarlet and Cincinnati Market. Chartier is the summer radish "par excellence." White Strasburg is an early fall root; White Chinese the best tasting sort for early winter; Black Spanish the best keeper.

AS TO vegetables grown for greens and salads, there is good news! It is good to know that the "famine" in spinach seed is over, perhaps never to return. Almost over night the great Northwest has become a world factor in producing seed of this vegetable. It is produced literally by the ton throughout Washington. Aren't you glad? It is also good to feel that New Zealand spinach has reached a point of deserved recognition as a wonderful producer of greens in the midsummer garden. Swiss chard, or spinach beet, has also come into its own and our home gardens will never again be without a row of some sort of plants that furnish "green" food acceptable to humans and so essential to their welfare.

UNLESS every home gardener takes kindly to growing some cabbage this year, there will be an unpredecented shortage of "Liberty cabbage" in 1920. The cabbage seed crop is one of the shortest in the history of the country. As the result, commercial producers will not grow as large quantities as usual. On the other hand, a "packet" of seed contains just as much as ever, and if every home gardener does his part, we will have millions of small individual cabbage patches this year instead of a few thousands of big ones. There are three types—the Early pointed; the Flat Dutch; and the Round Danish. Remember that the pointed ones do not keep well; the flat Dutch type is the most popular, and the Danish is the most solid, and consequently usually keeps best.

I don't know just where tomatoes "belong" but after all is said, we have to acclaim the tomato as the most dependable, allround American vegetable. Two distinct classes of it are available, the standard or tall, and the dwarf. The latter is particularly adapted to the small garden, but its season of bearing is but short and, with one exception (Dwarf Giant), the fruits of the dwarfs do not size up to those of the taller vines.

The standards in turn, are divided into four types—the scarlet round, the purple round and the globe-shaped also having both scarlet and purple members. Manyfold (globe-shaped) is I think unquestioned leader in its class, as a perfect salad fruit, the earliest bright red. Hummer, and Coreless, are larger, later sorts of the same color. There is only one purple globe-shaped sort—*the original* Globe—to my mind the best from all points of all tomatoes I have grown unless it shares honor with Bonny Best, among the scarlets. Both are early, productive, and the fruits uniformly of medium size, also very smooth and generally handsome. Chalk's Jewel is a good one to select for succession—it bears until frost. Stone is still the standard main crop scarlet for all purposes, and is really unrivalled.

AS THE basis of all good salads, lettuce ranks alone. Four types ask for consideration—the loose-leaf, butterhead, crisp head and cos varieties. The first are the best for the man with least experience; and always remember that only "head" lettuces make solid heads. The butterheads are the true "quality product" but require careful cultivation. The crisp-heads are large and crisp but have little flavor. The cos varieties are useful as summer standbys when all the rest "go to seed."

The choice in loose-leaf sorts is easy. Butterheads are divided into early and late—the Tennis ball type being the earliest, the Mammoth Black Seeded Butter and All Seasons the latest. The best flavored "crisp" head is Mignonette. The most popular cos is Paris White Cos. Remember *please*, that for best results, lettuce must be *thinned out repeatedly*.

Other salad plants are endive, cress, mustard, and petsai or "Chinese cabbage"—which in fact isnt a cabbage at all! Fifteen years ago we discarded petsai and threw away a quantity of seeds simply because we did not know how to grow it. To-day petsai bids fair to rival Swiss chard in popularity because we "discovered" that it should not be sown until August 1st in the latitude of Philadelphia. Look at the head photographed October 17th, from seeds sown August 2nd. A twenty-foot row held two dozen plants like the one shown, good to eat as a salad, or like celery, or cooked as regular cabbage and when so served is even more delicate in flavor than the savoy type of cabbage. If you can beat it please let me know.

The Garden in the South

THIS is the month for careful thought and planning. The proper site for a garden: A southeastern exposure. The proper site for an orchard: A northern or northwestern exposure.

A garden should have an evergreen hedge as a wind-break on the north side. The orchard is exposed to the north to check early blooming of the trees as a late frost is apt to kill the fruit.

The character of the soil must be considered in selecting the site. For a garden, a good loose, loamy soil with much sand is best. For the orchard and Rose garden a subsoil of clay is preferable.

After deciding the location of garden and orchard draw a plan on paper, to scale. Make the rows run north and south if convenient so the plants will get the maximum of sunlight. Arrange to have the permanent plants—such as small fruits, raspberries, currants, gooseberries, strawberries, with asparagus and rhubarb in a far off corner of the garden so that the constant changing crops which need more working will be more accessible. Plant herbs convenient to the house where they can be constantly handy for seasoning in the daily cooking.

AFTER planning on the paper, one can easily calculate the number of feet that can be spared for the various vegetables. It is still necessary to concentrate one's attention on the more important vegetables, because of the urgent need of food over the whole world, and in this reconstruction period to make the minimum of work make for a maximum of food. Avoid fancy vegetables and fruits: try no experiments. Get your seed from the most reliable seedsman [Read carefully other articles elsewhere in this issue.]

Send for seed catalogues right away; go over them carefully; make out your order; and send it this month—send a full order for the whole season as seeds are scarce. If you are making a garden for the first time look up the scale in some of the back numbers of GARDEN MAGAZINES for January which gauges to a minimum the number of seed per foot needed of each kind. A list of the best and thoroughly tested vegetables for the middle South were given in GARDEN MAGAZINE Southern Reminder, January, 1918.

IF THE season is an open one much actual work can be done to speed things along. Asparagus trenches can be dug and a four inch layer of manure or nitrogen gathering humus be put in and dirt spread over this and the asparagus plants set in. Trenches for Sweet Peas can be dug and the peas planted; though many people plant them in November. The early garden peas of the smooth variety can now be planted.

On inclement days mend the hotbed sash; make small individual coldframes the size of a glass—i. e., 10 by 12 inches. These can be used in early spring over a tomato plant, squash or melon to force it along and to protect it at night from early frost; later the glass could be removed and a piece of plain cloth tacked over it and used to protect plant from destructive insects. There should be plenty of lettuce from the cold frames and the space which is now vacant can be used for early beets (Bessano), and French Breakfast radishes, also an early sowing of kale for greens. This is only done to be able to get greens when snow covers the ground; for as a matter of fact the salad greens—such as turnips, upland cress and spinach grow readily in the open ground. Cabbage plants of the early Jersey Wakefield held over in cold frames with slight protection can be set out in open ground in rows 2½ feet apart and each plant 15 inches apart in the row.

SPRAY. The orchard should be sprayed, if there is any sign of San Jose or oyster scales, with the winter strength of lime-sulphur mixture. Prune out dead limbs and those that crowd each other. (*Note.* Early flowering shrubs should *not* be pruned now, but *immediately after blooming.*)

Virginia. J. M. PATTERSON.

Uncle Sam's Boom to Gardening

THE thrifty war-time garden has come to stay! Perhaps nothing short of war would have thrust us easy-going Americans into thrifty gardening, but now that we've had the experience, we are in it to stay.

NEVER again will the American housewife cling so helplessly to the corner green-grocer—not while she has her own back-yard and her two hands! Never again will the commuting husband, having tasted the joys of fresh-picked vegetables, having felt the pride in corn and peas of his own growing, contentedly return to factory-canned produce, or placidly eat of wilted corn and shrivelled peas! Not he! Nor will he again see with pleasure his whole ground space devoted to lawn and himself, for recreation, to the use of the lawn-mower. Instead, he will be setting out dwarf fruit-trees, planting strawberry patches, cultivating with skill and assiduity a tiny kitchen-garden plot, for in America the day of the small garden has come at last.

NEVER before have the virtues of thrift and frugality been fashionable, but Uncle Sam has made them the fashion; and although fashions are passing, and those who took up gardening merely because it was "the thing" will presently revert to type, yet the bulk of men and women who enthusiastically went a-gardening will have gained a love for it, and "get the habit,"—for the love of a garden, once born in any one, is as imperishable as the love for children or for books. Never does one get over it. In the making of a garden there is real creative joy and no one who has experienced that in any art or handicraft readily relinquishes it.

Hitherto, in knowledge of horticulture and of agriculture, the American woman has been miles and miles behind her Continental and English sister. Take women from whatever station in life you might, and this was true. Even now, we have not caught up with those on the other side, but this year's impassioned sprinting, will have taken the American woman a long distance on the way. In organization, I believe we are not behind.

NOT only has Uncle Sam made gardening fashionable, but he has made it democratic to a degree it never dreamed of before. Very likely the drawing together because of a common peril and a common enthusiasm, and the common sympathy of having sons or brothers or husbands "over there" has made women forget the smaller differences, which frequently divide club from club and one group of women from another, in a larger, more unselfish interest. But, be that as it may, all of us have worked together and coöperated to a degree unheard of before. And now that we have found how well coöperation works, we shall be loth indeed to abandon the principle. The novel spectacle which this year and last year saw, of men and boys of a near-by city, quitting their regular work to help get in the crops, of the women of a whole county turning out to save the crops—all this is likely to be repeated any time the need arises. After all, it is nothing but repeating on a larger scale the thing that takes place in every country community, where one neighbor helps another thresh his wheat or get in his hay.

NO ONE dreamed that garden clubs—usually mere pleasant associations of the well-to-do—could be so flexible, and that they could be so generally useful. All over the country they have served as clearing houses of information and as bureaux of first aid to the unlearned and enthusiastic first-garden gardener. Few would have thought it possible to enlist the aid of business men and "Ad men," of Park Commissioners, and of working gardeners and commercial gardeners, in making a "spring drive" on the vacant lots and starting the work in back-yard gardens. But we have found how admirably and efficiently such a varied committee works, and those who were on such committees, having seen the results will be quite ready to serve again. For really to put things through is worth while.

THANKS to Uncle Sam, we have found out what public officials can do when they want to. Here and there one in a comparatively unimportant office has so utilized his opportunity for serving the public, that he has made it a very centre of activities, making the small office stand out like Portia's "little candle" or the shining of the "good deed in a naughty world." We have learned that it doesn't in the least hurt the sacred Park greenhouses to lend them to raising tomato and cabbage and celery plants for those who have no greenhouse facilities. And after having done all these neighborly, possibly ultra-democratic, but greatly appreciated things for the public, it will be hard for a succeeding Commissioner to prove that the greenhouses under his control cannot, and therefore must not, be asked to do any such thing.

So with the vacant lots. We have seen these gladly lent, and in some cities where they weren't, impressed into service. Therefore no longer will we calmly acquiesce in the sight of unused land in our cities or towns, while in the same town are men and women, or little children who want and need gardens and have no land to cultivate.

THE BRINGING of city-boys out to work on the farms may well be more far-reaching in its results than we realize. Some weeks of actual work on a farm will give a youngster a far better idea of what farm life really is than the two weeks of the fresh-air fund, for the poorer youngster, or the weeks at a hotel for his wealthier fellow. It will make for boys taking up farming, and taking it up with an intelligent idea of what they are about. Many a youngster who summered in the country has firmly fixed in his head the idea of getting his father and mother and smaller brothers and sisters out there to live, perhaps has his mind on the very little house —instead of a vague and abstract suggestion to the parents, the thing becomes a tangible possibility.

THE WAR-GARDENING has given a tremendous impulse and direction to school-garden work, and has given to its previous rigidity and bark-bound condition a jolt from which we fervently hope it may never recover. Never before have school gardens had so much lay help in the way of men and women from the outside who were practical gardeners. The exclusive and excluding attitude of many of the school authorities had to be abandoned before the sudden necessity—such positions as that of the Philadelphia authorities, that no one might teach gardening unless he or she were a normal graduate. The outsider might be a capable gardener, the normal graduate might have but the slenderest bit of book knowledge—it mattered not, the latter was given the preference, and was examined as to her fitness by those who themselves knew little of gardening, but much of school routine. The idea seemed to be to force on the school gardens the lock-step uniformity of the schools. So that we had the tiny plots, planned in arrangements and contents to achieve the uniformity of the garb of asylum orphans. But with the veritable freshet of garden-enthusiasm on the part of the children and their aiders and abettors, these stiff banks of prejudice had to give away. For what was called for and fairly clamored for was *results*—the children grew real crops, and such crops as were suited to the locality—crops which should aid the family exchequer in meeting the extreme cost of living, moreover they were to help in winning the war. And these large motives served far better than the school idea of gardening for the sake of getting in touch with Nature—and what mother's son ever went a-gardening of his own volition for that reason? He grew Roses because he wanted Roses, or corn or beans because he was sure he'd like them. The other object, the getting in touch with Nature, is a blessed result of any gardening venture, but it's an indirect result, and can no more be gained by direct assault than the Kingdom of Heaven may be taken by violence. And this *idee fixe* of the Boards of Education, made it fairly certain that the luckless children should never be taught gardening by any one who loved it. For the born gardener rarely gravitates naturally to the Normal School. But Uncle Sam's urgency and necessity, and the resulting avalanche of enthusiasm and veritable army of young gardeners made the thing more than the school authorities could manage and women's committees, local garden-clubs, took up the work, whoever could help was pressed into the service, and everywhere the children's gardening was a tremendous success. The crops were of definite money value, many markets were organized where the youthful gardeners might sell their produce.

Let us hope they never again will drop from their last year's practicalness and efficiency. One would like to see the whole enterprise of school gardens and school gardening under the supervision and management of the Department of Agriculture coöperating with the local Grange or farmer's association. There is no reason why the school authorities should be expert in gardening, or why we should expect them to be. Anyway it is a charming point of contact with the young folk for the towns-people, and for the Federal experts—why not have it? the making of gardens is a charming point of contact with the young folk—so why not have it? Certainly it is of value to the agricultural experts and also to their fellow townsfolk, to have personal acquaintance with the boys and girls of real gardening ability while to the children, such acquaintance will be of real help in their future business of making their way in the world.

ANOTHER interesting effect of Uncle Sam's adventure in gardening, is that our worship at the shrine of the great estate has passed and in its place is a hearty recognition of the worth of the small garden, of its value in the great business of feeding the nation, and of its benefit to the individual. The small garden has come to stay. The compact, admirably kept little garden, the matter-of-course adjunct to city or suburban house, the type of garden which was always present in the earlier days wherever was the chance for it.

Now that the pressing necessity of food production has passed a little, the gardens will be less exclusively utilitarian, there will everywhere be flowers a-plenty but the garden's essential character as first aid to the housewife's larder will not be lost, it has been found altogether too convenient. Our women will be likely to go in for fancy gardening, it is not impossible in the suburbs that skill in the management of cold-frame and hot-bed, success with strawberries and asparagus may take the place of rivalry at bridge and we may find housewives as proud of their gooseberries as was ever the Madam Vicar of Wakefield. Even the complexion of our suburbs may change, for who cares to expend time and labor on the bringing to perfection of peas or strawberries only to have a stray dog or cat work on these a work of Germanic devastation? Therefore we are likely, with the Return of the Garden, to witness also the Return of the Fence as a military necessity, and a return to the old-time garden enclosed.

FRANCES DUNCAN.

Give the Rose A Service Star

The Rose has done its part in the great World War.

Its "bit" has been in reminding men of their homes and loved ones, and in crowning the victors. Who, then, will refuse the Rose its mark of honorable service to mankind?

For ten years, it so happens, a STAR has marked in our catalogue all Conard Roses of superior value.

From now on, we are going *to attach a STAR* to each of our choice rose plants. This STAR means that we help you to choose for *your* locality and needs—that we help you plant right and that we *guarantee* that your

CONARD ROSES BLOOM

or we replace them.

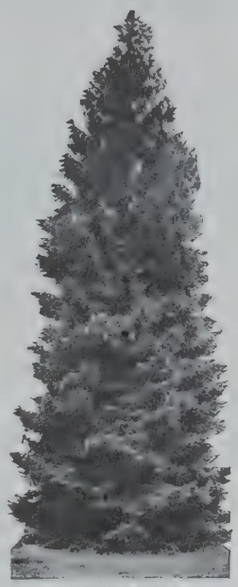
Two other STAR Rose Service points of particular interest to you right now—our new 52 page Catalogue and our Special List of the *best selection for your section* sent to those requesting Catalogue by or before March 31.

The full enjoyment of roses comes in having your own blooms. Our STAR Rose Service insures beautiful blooms right in your own garden *wherever* you may live. Don't put off sending for free Catalogue and Special List.

Conard & Jones Co.
Box 24 West Grove, Pa.
Robert Pyle, Pres. Antoine Wintzer, V. Pres.

EVERGREENS

in 70 Varieties and Many Sizes



DOUGLAS FIR

These include four ironclad natives:

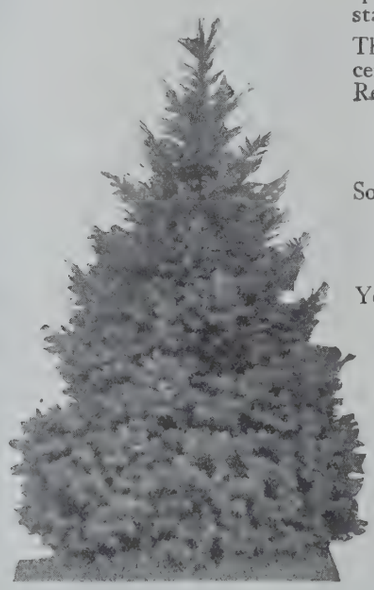
Douglas Fir **Hemlock**
Concolor Fir **White Pine**

We grow the Conifers in great numbers for they are landscape material *par excellence;* whether you have an estate or a small lawn. If you wish the best hedge, use Hemlock; the best windbreak, use Douglas Fir. White Pine, easily grown even in poor soil, becomes a stately monarch while you watch it mature. All may be effectively used as specimen trees and safely transplanted in large sizes.

E. H. Wilson, an authority on cone-bearing trees, says: "either as a lawn tree, or for avenues, or for massing, the Douglas Fir is equally valuable."

A distinguished superintendent of parks says: "I know of no evergreen more beautiful than the Concolor Fir, unless it be a well-grown Hemlock." Downing says of the Hemlock: "In almost all cases, it is extremely ornamental." The White Pine, he declares to be the most beautiful of the 24 North American species in the genus Pinus. It is beautiful in every stage of its growth, from a seedling to a towering tree.

There are dozens of other Evergreens, each useful in certain places. Among these are Arborvitaes, Cedars, Retinisporas, Spruces and Yews. Then there are the



Broad-Leaved Evergreens

Some of these are well-nigh indispensable:

Andromeda Floribunda
Mahonia Aquifolium **Leucothoe Catesbaei**
Mountain Laurel **Rhododendron**

You'll find full descriptions and attractive prices in the 1919 Rosedale Catalogue. We also list Roses, Fruits, Perennials, and Deciduous Trees and Shrubs. There will be a rush of after-the-war planting. Write for Catalogue at once and make sure of securing your *complete* planting list. We'll mail it as soon as ready.

ROSEDALE NURSERIES
S. G. HARRIS, Prop.
Box A TARRYTOWN, N. Y.

SUNLIGHT Double Glass Sash for Hot-beds and Cold-frames

Garden Sash That Hold The Heat

When the Sun's Heat Rays in Winter fall upon the SUNLIGHT Sash, they pass through and are saved to warm up the bed beneath. It becomes a Summer Spot in Winter Time, not only by day but overnight, for the double-glazing holds the stored heat and the plants in the bed grow unchecked.

That's the story in brief of the Sunlight double-glazed sash. Get some and set them in your garden. They are also used on the top and sides of the Sunlight ready-made small greenhouses.

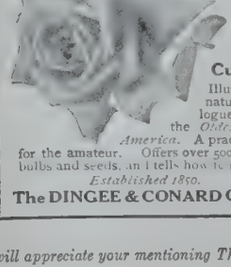
Ask for a Catalogue and Price Chart

Sunlight Double Glass Sash Co.
937 East Broadway Louisville, Ky.

DINGEE ROSES

Sturdy as Oaks

Pot-grown rose bushes, on own roots, for everyone anywhere. Plant any time. Old favorites and new and rare sorts, the cream of the world's productions. "Dingee Roses" known as *the best* for 67 years. Safe delivery guaranteed anywhere in U. S. Write for a copy of



Our "New Guide to Rose Culture" for 1919. It's FREE.

Illustrates wonderful "Dingee Roses" in natural colors. It's more than a catalogue—it's the lifetime experience of the *Oldest and Leading Rose Growers in America.* A practical work on rose and flower culture for the amateur. Offers over 500 varieties of Roses and other plants, bulbs and seeds, and tells how to grow them. Edition limited.

Established 1850. 70 Greenhouses.

The DINGEE & CONARD CO., Box 137, West Grove, Pa.

Morris Nurseries

Before placing any order get our late catalogue of evergreens, hedge plants, shrubs, climbers, roses, shade trees, and the best of everything in large and small fruits. We have a superb stock for spring planting. Get the varieties you pay for, at right prices, with fair dealing. Our greatest care is to send fruit trees true to name. Catalogue has many helpful suggestions. Write for it to-day.

The Morris Nurseries
West Chester, Pa.
Box 804

THE MONTH'S REMINDER, JANUARY, 1919

The purpose of the Reminder is to call to your attention the things which should be thought about or done during the next few weeks. For full details as to how to do the different things suggested, see the current or back issues of THE GARDEN MAGAZINE. *An index of contents is prepared for each completed volume, and is sent gratis on request. Index for VOL. XXVIII is now ready.*

THERE is only one way, of keeping opportunity from giving us the "go by" this year in the same way as it did last year.—*Plan, now, to be ready to open the door wide at every knock!* Ever notice a new street after the real estate agents and contractors got through with it? The lots and even the houses may be as near alike as "two peas in a pod." Let a year pass! Come back. The monotony has begun to disappear. Striking differences are beginning to show up. Return next year. Hardly any two places are alike. Another year or two, and you can hardly make yourself believe that all these places started out only recently with the same advantages and disadvantages. What makes the difference? Planting, of course—but, back of the planting, the PLANNING. The owners of some of those houses started out with a definite idea of what they wanted to achieve. Others did not. The planning makes all the difference.

Fix the Ideal in Mind

WHAT do *you* want? That is the first question to decide. Do you know what you're after? "Of course, I do," is your first thought. Try it. Put it down on paper. Discuss it with the other members of the family, and see how far you get before you have to begin to make changes.

Then what you do plan to put in must, of course, be limited—limited first by space, and secondly by time required to care for it. Most people make the mistake of thinking expense is the only limit, but space and time are more important.

What Best Suits the Place

IF YOU analyze any place, you will find it is made up of many parts—lawn, shrubs, ornamentals, trees, fruit trees, and vegetable garden. Hedges, walks, drives, and so forth are incidental. All this applies not only to the brand new place, but to the old place as well. Don't be afraid to use radical treatment. Put down on paper your place as it is; then, make it over the way you would like to have it. Some natural features—big trees, stones, buildings and so forth cannot be changed. But there will be much that can be changed, if you do it gradually—a bit here and a bit there, but all working toward a definite end. Here are the steps to follow.

First, *lay out space to be devoted to shrubs, flower beds, borders, and so forth.* Keep in mind the fact that many fruit trees are ornamental and can be used for a double purpose.

Second, *get the lawn clear.* If it is already dotted with shrubs, small trees, and hole-in-the-ground flower beds, plan to move or eliminate them; a clean sweep of good lawn, is, without exception, the most attractive feature your place can have, if it is anything more than a lot.

Third, *select a permanent place for the vegetable garden,* preferably with a southeastern or a southern exposure. Plan to put a good, substantial hedge around the north and west sides to shelter it.

After this general survey, go over in detail, not only plans, but all the supplies, accessories and so forth you will want in each different "department" of your place.

For the Lawn

DON'T be content with a "moth eaten" lawn. If it is getting worn out, make definite preparations now to renew it in the spring. Having the materials on hand when the time comes is more than half the work! First of all, you need a supply of good seed. To reseed altogether, figure on a quarter of a pound to each one hundred square feet. Reseeding a sod already in fairly good shape of course will not take so much. Avoid cheap seed, that is light, full of chaff, and containing many undesirable grasses. Poor seed will cause trouble for many years and you should buy lawn grass seed only from the most reliable scoures. In putting down a big lawn, it will pay you to consult last year's articles on lawn making in the GARDEN MAGAZINE.

Get a lawn roller. No single implement contributes so much to the welfare of your lawn. With ordinary care it will last a life time—and help the lawn to do so, too!

Keep the lawn edged. There is a handy, new, inexpensive little edger to keep the lawns and drives and walks in condition which should find a place in every tool shed. It is easy to use, does good work and won't get out of order.

Keep your lawn well fed. Special fertilizers for lawn use are sheep manure, ground bone and high grade humus. With these and plenty of water, you will have little trouble in keeping a good lawn. Plenty of water in dry weather means a portable irrigating outfit. You will never be without one after you once see it in operation.

For the Garden

MAKE a garden plan early this year. You can't tell what you want in the way of seeds, plants, fertilizers or anything else until you have your plan made. Follow the many suggestions given on other pages of this issue of the GARDEN MAGAZINE—but *get at it now* for the spring comes apace! Order your seeds extra early again this year. Spinach, tomatoes and some other things which were scarce last year, are in good supply again now—but peas, some varieties of beans and corn, and numerous other things are short. To make sure, *get your* WHOLE *order in* EARLY. Transportation conditions have straightened out a little, but help is still very scarce and the seedsmen will be overburdened with work again this year during the busy period. Start early, avoid the rush and *get what you want!*

Order your fertilizer early, too. The war is over, but there are no surplus stocks. In fact, owing to greatly increased demand, it is going to be as hard to get this year as last. Don't take risks by waiting; order now. Get highest grade you can buy—cheap fertilizer is almost as much of a deception and a snare as cheap seed. If your needs are *extensive* it will be well to buy the "raw materials"—nitrate of soda, tankage, dried blood, bone meal, and acid phosphate—separately, and mix your own fertilizer for general purposes; otherwise not.

Remember permanent plants for the garden: Have you all the asparagus and rhubarb you can use? Or have you tried asparagus and failed with it on account of the "rust" which has wiped it out entirely in some sections, Rhubarb for canning as well as plenty to eat. If you haven't got that now set out a few more plants this spring. Put it on your garden plan.

Plan to improve your garden this summer: Can't do it all at once of course. Group your vegetables so those harvested late will come together. Then you can remove every stone in that section of the garden; plow or trench it one to two feet deep; manure heavily; drain if necessary; have it ready to yield bigger crops than ever for years to come. Put it down on your plans now so it won't slip your memory later.

Keep your garden equipment up to date: Are you one of the gardeners who bought an outfit of tools when you started in years ago, and haven't bought anything but a trowel and a new watering pot since? Try out the new tools—there are many very good ones that save time and cost very little. Especially good are the new adjustable rake-hoes; the slide, or scuffle hoe with a light frame or shoe to guide it (and several useful attachments)—especially good for the very small garden, where there isn't quite enough work for the regular wheel hoe outfit; the combination disc and wheel hoe, which not only cuts off all weeds, but breaks up the crust at the same time; and the hand wheel "pulverizer," designed to use after spade or fork just as the harrow is used after the plow. Don't wait till garden time; get the catalogues now and order any of these you can use to advantage.

Reconstruction in the Flower Beds and Borders

MAYBE you've sort of felt it your patriotic duty to rather let the flower beds take care of themselves the last year or two. If so, brush up! There have been a number of fine new things. Look over the two March numbers of GARDEN MAGAZINE for 1917 and 1918, if you want a complete summary to make your selections from.

Plan now to make changes. Are all your flower beds satisfactory? If not, you can at least lay 'em out now on paper the way you'd like to have them. Perennials that have been in the same place several seasons will do all the better for being changed. Don't wait till you can attempt to do everything at once.

Order nursery stock and summer plants early: Even last year local florists were surprised at the un-anticipated late demand for flower seeds and plants, for which there was not time to wait for nursery delivery. Stocks of many things are low because of coal restriction, and because of labor shortage. The wise gardener will order plants early this year. Shipped later, of course, whenever he is ready for them.

Pick out the "trimmin's" for the garden: Do you fully realize how much of the general effect of the lawn and flower garden may be due to tasteful selection of a few "accessories"? A lawn seat; a bit of wire fencing; artistic plant supports; a simple but appropriate bird bath; etc., etc., may give just the finishing touch that lifts the whole out of the commonplace and furnishes attractive individuality! Now is the time to study over these things, and fit them into your plans on paper.

For the Greenhouse and Frames

FLOWER seed for spring bloom inside, such as Stocks, Clarkia, etc.; plants like Heliotrope, Paris Daisies, Begonias, etc.; long-season plants for next winter, such as Cyclamen, Ardisia, Primroses, Gloxinia; vegetables for early starting, such as cabbage, lettuce, cauliflower, beets, onions (Spanish types), and celery;—order these things without further delay, even if you are not yet ready to send in the order for flower and vegetable seeds for outdoor sowing.

Remember there's glass to be fixed every spring. After winter snows, and winter storage, and freezing and thawing, there's bound to be some fixin' up to do in February and March. Don't get caught without the materials again.

For the Fruit Garden

HAVE you got enough fruit on the place? If so, you deserve a medal for being a rare exception to a general rule. Chances are you haven't. Now is the time to look into it, and plan where you can put some more. Grapes, dwarf apples, pears or plums, cane fruits, can all be "tucked in" here and there, even if the place is small, or well filled. Study over your plan, and see where there is room to fit in the kinds of fruit you haven't got, or need more of.

No Waiting for Spring Thaws Before Setting these Plants

HERE at The Terraces the climate is cold enough to ripen all hardy plants, and to keep them dormant until early spring. Yet the ground is in such condition that

We Dig and Ship Fresh Plants

direct from the ground; there is no need for cold storage or waiting for spring thaws. It is an ideal time for setting Hardy Plants along the Pacific Coast, in the South, and other mild sections.

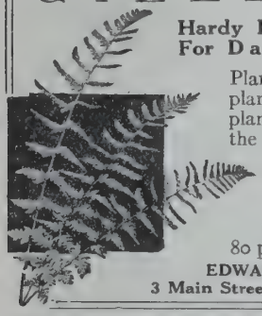
My collection of Iris, Phlox, Hollyhocks, Michaelmas Daisies, Evening Primroses, and a host of other plants, includes only the rarest and most desirable varieties.

I pay postage or express charges to any part of the United States.

My Special Catalogue will be sent free to all readers of Garden Magazine who ask for it.

CARL PURDY Box A, Ukiah, Cal.

GILLETT'S



Hardy Ferns and Flowers For Dark, Shady Places

Plan NOW to get ready to plant your native ferns, plants and bulbs early in the spring. Early planting brings best results.

Send for descriptive catalogue of over 80 pages. **It's FREE.**

EDWARD GILLETT
3 Main Street, Southwick, Mass.

Gladiolus Enthusiasts

You Simply Must Have

PRINCE OF WALES

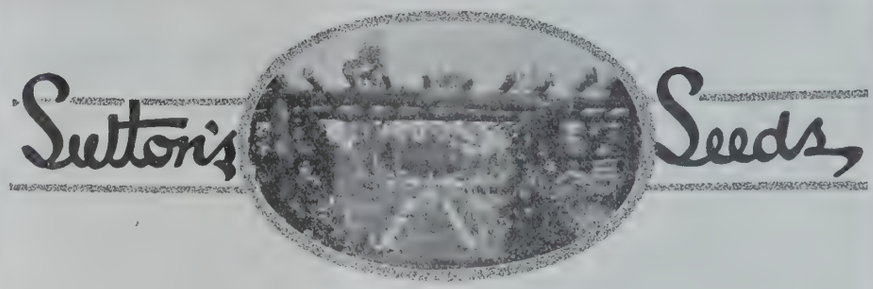
The gladiolus beautiful, color a clear, glorious, shimmering apricot salmon melting to a throat of the sweetest yellow. The Ophelia Rose of the gladiolus world.

It is invariably selected by visitors as the most striking and magnificent color combination in my gardens.

Prince of Wales is **extremely early** with **large flowers** on a **tall, strong spike** and is a **rapid multiplier;** this with its incomparable color gives a flower of singular charm. There are many white, pink, yellow and red gladioli but this is the one and only salmon. Awarded a First Class Certificate at Haarlem, Holland.

I believe that I have the largest **true stock** of this variety in America and although within the last two years this has sold as high as $1.50 per bulb, I can offer it at the very reasonable price of **25 cents apiece** for strong flowering size bulbs, **$2.50 per dozen, five for $1.00,** postpaid.

RAYMOND M. CHAMPE
Walled Lake, Oakland County, Michigan



Send Early for Our Catalogue

THE idea in suggesting that you send early for the catalogue is because with the war over, there is going to be a wonderful demand for seeds of all kinds.

The world war has greatly reduced the supply. Those who, during the war, have found out the economies, not to mention the genuine pleasure of vegetable gardening, will be planting more seeds than ever.

The returning soldiers will be taking up their gardening again; adding their demand. As a natural rebound from the depressing thoughts of war, flowers will be planted as never before. Which in turn, will multiply their use.

Therefore, send for your catalogue early; so you can order your seeds early. You will then be reasonably sure of securing the ones of your choice, before the necessarily somewhat limited stock is exhausted.

Send 35c. for the catalogue. With $5.00 purchase of seeds, the 35c. will be promptly refunded

WINTER, SON & CO.
64-C WALL STREET
NEW YORK
Sole Agents East of the Rocky Mountains

Sutton & Sons
Royal Seed Establishment
READING, ENGLAND

THE SHERMAN T. BLAKE CO.
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Cultivate Your Garden the "PERFECTION" Way

The "Perfection" Cultivator kills weeds, aerates the soil, conserves moisture. Can be adjusted many ways and anybody can work it. Write for full details **to-day.**

Satisfaction guaranteed or money refunded

LEONARD SEED CO.
226-230 West Kinzie St.
Chicago, Illinois

Any of three sizes $3.50 each

No. 1, with two discs with 6 inch or 7 inch knives, will work rows 9 to 11 inches wide.

No. 2, with four discs for use with 7½, 8¼ and 8¾ inch knives, will work 11 to 14 inch wide rows.

No. 3, with four discs, and 10 or 11 inch knives, works rows 13 to 16 inches wide.

Descriptive circular and catalogue of seeds for present planting FREE

ANDORRA-GROWN SHADE TREES

For Street or Lawn

Our ability to supply trees of the highest quality is not curtailed by the stoppage of foreign shipments. 600 acres of home grown stock for your selection.

Andorra Nurseries

Wm. Warner Harper, Prop.

Suggestions for Effective Planting on request.

Box 100
Chestnut Hill
Phila., Penna.

Advertisers will appreciate your mentioning The Garden Magazine in writing—and we will, too

Kunderd's Wonderful New Ruffled Gladiolus

are the most beautiful in the world. No others like them, none nearly so beautiful.

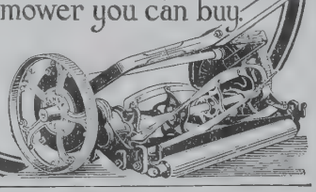
Finely illustrated 52-page catalogue *free* for the asking. It describes nearly 300 varieties, all of our own production and most of them obtainable only from us. It also contains the most complete instructions on the care and culture of Gladiolus ever published. Let us send you a copy.

Address the originator of the Ruffled Gladiolus.

A. E. KUNDERD
GOSHEN, IND., U. S. A.

PENNSYLVANIA QUALITY LAWN MOWERS

You should mow your own lawn. If you must have a new mower, get the lightest running mower you can buy.



At Hardware Dealers and Seedsmen

Evergreen Bittersweet

Euonymus radicans vegetus

A lovely climber, adaptable to all locations; unsurpassed for covering trellises, walls or stumps. Rich green all the year, with crimson berries in winter. Can be planted at any time.

1st size, 50c each; $5 per dozen
2nd size, 75c each; $8 per dozen
3rd size, $1.50 each; $15 per dozen

Adolf Müller DE KALB NURSERIES
Norristown, Penna.

We Specialize in Bearded Irises

SEND FOR LIST

THE GLEN ROAD IRIS GARDENS
GRACE STURTEVANT, Prop.
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HomeLandscapes

HERE'S a booklet that answers the many questions which present themselves to the thousands of home owners and home builders when laying out their grounds. To possess it is like having the advice of expert landscape gardeners right at hand. Its 80 pages are beautifully illustrated with 109 sketches of plans, groupings, and valuable information about planting. It's free.

A Memorial Peace Tree

The greatest event of the world's history ought to be commemorated. We will do our share by supplying a tree at cost (about one-half usual catalog price). The Maidenhair tree of Japan lives a thousand years, $1.00 or an oak $2.00. Both guaranteed.

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Westbury, Long Island
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DAHLIAS

Paeony flowered Cactus, Show, and Decorative varieties in all colors, best varieties, long stems, field grown roots. 10 roots, $1.50; 25 roots, $2.50.

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ROSES of New Castle

are the hardiest, easiest growing, freest-blooming rose plants in America. Always grown on their own roots in the fertile soil of New Castle. We are expert Rose growers and give you the benefit of a lifetime experience. Our list the most select in America—embraces every desirable Rose now in cultivation. An immense stock at right prices. Our rose book for 1919,

"ROSES OF NEW CASTLE"

tells you how to make rose growing a success. It is the most complete book on rose culture ever published. Elaborately printed in actual colors. Gives information and advice that you need. Send for your copy of this book today—a postal will do.

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Winter Protection for Roses

WHEN the ground was well frozen, I spread a six-inch layer of leaves over the entire bed. After Christmas, I bought a wagon load of Christmas trees for twenty-five cents. I laid the longest trees down the long sides of the bed and the rest right across them; in this way, there was not so much weight upon the Rose bushes as to break their branches. These trees served the purpose of protection perfectly. On the one hand, they were heavy enough to break the frost and keep the sun from harming the Rose branches; on the other hand, they were light enough to admit a free circulation of air. Of course, it would not be desirable to have their resinous needles fall into the soil of the Rose bed, but the layer of leaves prevents that, and anyway the needles do not begin to fall until nearly time for the trees to be removed. I took the trees off the bed on the 16th of March; and a week later I began gradually removing the layer of leaves, leaving the bed clear by the end of the month. I did not lose a single plant; nor did I ever have so little dead wood to prune away. And these were not particularly hardy Roses. Frau Karl Druschki was the only Hybrid Perpetual in the bed. The majority were Hybrid Teas, which are by no means indifferent to zero weather. And I had also two full-blooded Teas, Lady Hillingdon and William R. Smith; we know how little the Teas can stand cold, but these came through as well as any.

Huntington, Plainfield, N. J. AGNES FRALES.

Planting out Lilies-of-the-Valley

NEWLY planted Lily-of-the-valley beds often present a phenomenon which puzzles their owners. The plants bloom nicely the first year after being set out and it may be three years before the bed blooms freely again. The reason is simple. When Lily-of-the-Valley pips are prepared for the market, the runners are usually removed. The pips themselves have been grown until they reached the blooming age, and will naturally flower in the spring if they are set out in the fall. The pips will have then exhausted themselves, and the runners which start may not develop sufficient strength to produce blooming pips in their turn for several years. If one digs up an old bed and is careful not to break off the runners, the plants will flower from the first year on. It is sometimes supposed that Lilies-of-the-valley once established will go on blooming freely for an indefinite period. This is not true. If the ground is particularly rich, they will do well for several years. Otherwise after three or four years, the blossoms will begin to diminish in size. Then the bed should be reset.

If one wants to have flowers of the first quality every season, it is an excellent plan to start a new bed each year, each old bed being taken up when three or four years old. If this is done, there will never be any lack of flowers suitable for cutting. Individual pips are best for forcing, but for planting in the garden better results will be produced when clumps are purchased, although there is no assurance that the same interruption in blooming will not be suffered, when imported clumps are set out. If the flowers are not kept removed, Lilies-of-the-valley will often produce seeds freely in the fall. If this seed is planted, it will produce flowering plants in three or four years.

Mass. E. I. FARRINGTON.

Facts About the Iris Borer

LOOKING over the November GARDEN MAGAZINE I read with interest Miss Gilbert's note on an Iris pest, but if her observations are of the Iris borer, Macronoctua onusta, they differ in some respects from mine, inasmuch as I have rarely, if ever, seen a stalk attacked directly, though sometimes one is undermined. The first sign is ordinarily a small round translucent or oily looking spot half way up on an inner leaf of the sheaf, where the larva commences its life work of eating. From this spot it goes downward eating the tenderest parts of the leaves and leaving a slimy trail behind, when near the base so much has been eaten that a slight pull will bring the central leaves away from the outer ones and you find a dingy white larva concealed in them, or the hole into the rhizome, in which case a hatpin is more effectual than a knife in removing it. The whole rhizome may be hollowed out by the borer and if it prove too small it will enter a contiguous one before crawling into the soil to pupate. At the end of this stage, the eating stage of its life, it is a big fat larva, often 1¾ inches long, dirty white with more or less of a pink tinge on the back and with a brown face. It buries itself three or four inches from its burrow and about an inch deep in the dirt to pupate. The chrysalis is rather lively for a pupa, is a shining bright brown and about an inch long; from it emerges the moth, about 2 inches from tip to tip of the wings when mounted. It flies at night and is a dull velvety brown with lighter areas of a pinkish tan so that it is well camouflaged and seldom is seen. The under surface of the wings look as if they had been singed. The eggs are deposited on the rhizome or on the base of the old leaves. I agree with Miss Gilbert that the remedy is hand picking but I should begin much earlier in its career. It can be killed by pressure when still in the leaf. As the signs are unmistakable when once you learn them I could easily keep in check this foe if I had but a few dozen plants to inspect frequently, but as the eggs begin to hatch during the blooming season when there are many other things to be done, and continue over a long period, many of the larvae get full grown among the thousands of my plants, so in September I take up any plant that does not look thrifty and search carefully for borers and pupae. In my garden they are most numerous in shady places, where I imagine the moths find more protection, but in the field plants it is just chance and where there is one egg laid there is likely to be more.

The borer does not touch Bulbous Irises, but the Siberian, Japanese and other Apogons are *not* immune and the pest is far more difficult to eradicate than from among the Bearded irises.

I am not much troubled by them but I know of one grower who spreads leaves from the street trees on his Apogons and burns them over in the late fall so as to destroy the eggs. Where a clump is badly infected carbon bi-sulphide can be applied; that, burning over, and lifting and cleaning the plants, are the only effective remedies known to me. If you strip off the old stalks and leaves to keep the garden neat a good many will be removed. But Macronoctua onusta does not confine its depredations to iris in my garden; I have not been able to keep large clumps of Lupins, Columbines, or Bleeding Heart in good condition for a number of years, in fact, in looking back I realize that I lost my pet plants of Aquilegia chrysantha long before I found any trouble in the Iris and I think in my repeated attempts to have a showy clump of Dicentra spectabilis I may have introduced it in the large plants that I bought.

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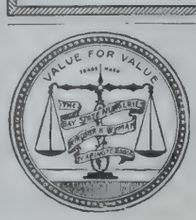

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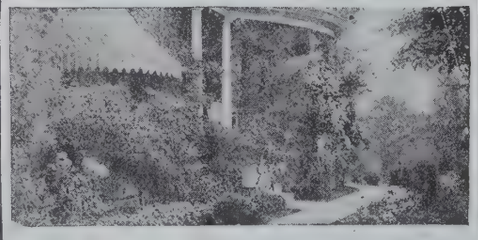

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Round About the Home Plot

This feature of the GARDEN MAGAZINE *is designed to meet the needs of those people who are interested in keeping a few chickens, bees, etc., purely as amateurs. Hundreds if not thousands of our readers have, or should have, a small flock of fowls to supply the home table with unquestionably fresh eggs and an occasional chicken or fowl. Such flocks effect many economies not merely as just mentioned but by the utilization of table scraps, kitchen waste, vegetable tops, etc., by the application of their droppings to growing crops and by the destruction of insects when it is feasible to allow them liberty. Bee keeping has, of course, a more limited scope; but no hobby that we know of is so easily adapted to limited areas or is so fascinating whether the object be honey production, queen rearing, or the study of insect habits—not to speak of the relationship to the fruit crop. Readers are invited to ask questions and to send the editor short personal experiences and comments so the department may be made as helpful and personal as possible.*

Proper Care of Poultry Manure

When properly handled poultry manure is richer than other manures, first, because the food is generally richer being largely grain, insects, and other small animals; second, because the excretion which corresponds to the urine of the larger domestic animals is mixed in a semi-solid form with the manure so is not so subject to loss as if liquid. For these reasons poultry manure is usually rich in nitrogen and phosphoric acid but relatively poor in potash, though even of this it may contain a larger percentage than do other animal manures. The above points concern only the manure unmixed with straw or other bedding material which, of course, serves as an absorbent.

As too often neglected and improperly handled poultry manure ferments quickly and loses its strength in consequence, the chief losses being nitrogen in the form of ammonia which rapidly passes into the air. As nitrogen is the most expensive plant food to buy and the most important in the production of leaf crops such as cabbage, spinach, and lettuce every care should be taken to prevent waste. It has been found that land plaster, acid phosphate, or superphosphate plaster, are excellent to scatter on the droppings not merely because they absorb moisture but because they combine with and thus hold the soluble nitrogen compounds. In the group of simple absorbents which do not chemically combine are dry earth, powdered dry muck and dry old sawdust. If these and the previously mentioned materials be scattered over the droppings each day the combining and drying will be far better than if the applications are made less frequently. Daily cleaning and storing of the droppings in dry quarters will also not only favor keeping but will maintain a purer atmosphere in the poultry house. During the cold months the droppings should be stored under cover but during the growing season they may be applied daily to plants that need a little stimulation. They are especially useful in the growing of onions, especially if applied as a top dressing after the plants are two or three weeks old.

Water in Cold Weather.—It is a good plan during cold weather to have the water slightly warmed for the fowls. This helps in egg production because the fowls don't have to raise the temperature of the water they drink to that of their bodies, thus saving food. Simple warming apparatus may be bought from keepers of poultry supplies, and from many seedsmen, or they may be made at home by enclosing a "night lamp" in a box beneath the water "fountain."

Sure Death to Mites in Poultry Houses.—While kerosene is generally used for killing mites it is not as effective as it should be because it kills only those creatures and eggs that it hits. Those that escape quickly re-populate the place. Kerosene does not work into the cracks well enough. A better remedy is a plumber's gasolene torch. The flame being produced by pressure may be directed into cracks or corners that kerosene cannot reach. It will kill immediately but not endanger the premises unless, of course, it is kept too long in one spot, or is directed against straw or other quickly inflammable material. Its application takes no longer than does that of kerosene.

Cull Out Inferior Fowls.—In every flock are fowls it will never pay to keep. The food they eat is mostly wasted. How may they be recognized? Notice first the roosters. The broad chested, full tailed, erect standing, bold, strong beaked ones with the hearty voices are the safe ones to keep. They not only advertise their own vigor but give promise of sturdy progeny. But the long-shanked, thin beaked, narrow chested, droop and scraggle-tailed, peaked looking fellows that never crow with any apparent enjoyment are the weaklings. The hens and pullets show the same characteristics, not so prominently perhaps but still clearly enough to separate them from their more desirable sisters. They are also weaklings. Both they and their inferior brothers are undesirable for breeders or feeders. They can neither be made to produce a fair supply of eggs or weight of meat. The sooner they are manufactured into potpie, stew or soup the better. For the purse and the progeny of the flock as a whole it's no use lavishing kindness or feed on them. They simply can't make an adequate return.

What is true in such a case is just as true in the improvement of fowls where no new blood has been introduced for several years. And it applies to egg laying habits as well as to flesh forming. So every two or three years a new male, preferably a cockerel, should be introduced from some bred-to-lay strain of the same variety of fowl so as to improve the "blood." Of course, where one is merely growing fowls for the eggs they lay no male is necessary. Also where baby chicks are reared neither cocks nor hens are needed as the chicks may be raised by hand.

Unless there is a special reason for retaining the male at the end of the breeding season he may be used as pot-pit or stew. This will save feeding him for eight to ten months for no useful purpose, but rather the reverse. For if eggs are to be stored in water glass in the flush season for use in the fall and early winter when the hens never lay well, the rooster is a menace to best results. Eggs laid by fowls kept apart from the male store more safely than do those from hens not so kept.

Remarkable Career Ended.—Peggy the Rouen duck owned by Mrs. Isaac W. Bannister of Veronna, New Jersey, died recently. She was famous for having laid 325 eggs, a record which is 10 eggs more than the famous $10,000 Leghorn hen, Lady Eglantine.

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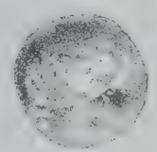

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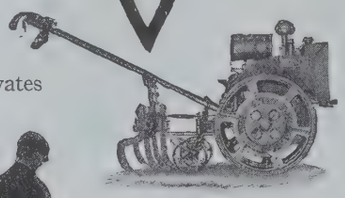

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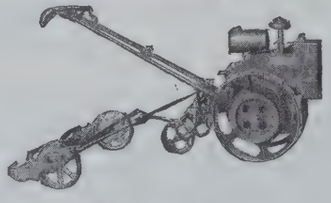

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Round About the Home Plot—*Continued*

Bee Keeping for Boys

One of the finest hobbies a boy can have is bee-keeping. It will not only prove interesting to watch the habits of the insects but it should provide plenty of pocket money for the average boy. The first money is likely to come in from the sale of honey; but if Mr. Boy is wide awake he will soon want to try some of the more profitable and more interesting lines of work such as dividing and increasing colonies so as to sell them, or the still more fascinating work of queen-rearing for sale.

It would be hard to find a place except in the large cities where bees can not have plenty of flowers from which to gather nectar. Wherever Basswood, Catalpa, and Locust trees, Clover of any kind except the large red, Alfalfa, Buckwheat, Golden-rod, wild Asters and many other flowers are abundant the bees will find ample forage. In fact, about the only unsafe place to start is where there are not flowers within five miles.

The start does not cost much. Good, strong colonies in modern hives can usually be bought in the spring for $5 to $10. Other necessities such as a bee-veil, a smoker and a feeder cost only a trifle each. Preferably the colony should be moved to its new quarters in early spring because the bees will thus become acquainted with their new home and not return to the old. Also a colony then has passed the winter in safety. In buying always see that there are lots of bees and larvae in the hive, that there is an energetic queen and at least a fair supply of honey.

It is always a good plan to have two or more extra hives with some combs of honey and "foundation" for other combs so that should the colony bought suddenly divide there will be a place ready to house the new swarm. Then, too, there is always the chance of catching a stray swarm. Often the neighbors will tell a boy who is keeping bees where such a swarm has alighted or where one has taken possession of a hollow tree, or a cavity between the walls of a building. Such swarms cost nothing but the effort to get them, and often they pay well before the season is over. The writer of this article visited a place last summer where fifteen or twenty such swarms had been caught and hived. Some of them were enticed to enter hives placed in trees; others were jammed into sheets and dumped in front of the hives to which inclined boards served as runways.

It is a good thing to have beginners' books on bees and to read the articles in bee and other magazines; but if the boy can get to some experienced bee-keeper's place occasionally and help the bee-keeper as well as ask questions he will make better progress. But besides this he should try to keep his own eyes and mind open to discover for himself the wonders of bee life. One of the most interesting books to read is by Maurice Maeterlinck. It does not pretend to be a "practical" book, but it will surely open the eyes of any boy or girl to the general life habits of the honey bee.

The country boy may be thought to have the advantage of the boy in the small town but this is only a seeming. The boy living where there are flower gardens has just as good a chance as the one in the actual country; for bees have been known to fly more than ten miles for their supplies of nectar.

The one point usually brought up against bee-keeping is the bees' sting! It certainly feels hot the first time it is presented and there may be more or less swelling the first few times each year. But very soon it hurts even less than a mosquito bite and even where through carelessness or wrong management several stings are received close together the effect is little or nothing because the human body becomes resistant to the stings. The interest in bee-keeping and the money to be made will soon make almost any one forget about the sting.

Breeds of Bees.—In the United States the German or black bee is commonest. It is hardy, makes whiter combs than other varieties but is inclined to be "touchy" so is not the best kind for the novice to begin with. Cyprians are even worse. They are not popular on this account. Not even smoke will subdue them. In distinct contrast is the Carolina bee—the most gentle of all. Unfortunately it makes new swarms upon very slight provocation! Like it the Caucasian bee, recently introduced into the United States, is so gentle as to be considered stingless! It has stings but is slow to anger. Of all the races, however, the Italian is the most profitable and satisfactory. It is more gentle than the black bee, handsomer, having a golden yellow and black abdomen, an energetic worker and honey gatherer, active defender of its home against the bee moth and other enemies but in order to be carried through the winter it must be well supplied with food and be well protected against cold.

Easy Money! It is often said that in honey production alone bee-keeping pays better in proportion to the investment of both money and necessary time than any other line of rural occupation. The editor would like to have several short personal experiences showing how amateurs—people with only a few colonies—have made bee-keeping pay them.

Hives in Winter.—Unless the hives have been well painted they may leak during stormy weather if wintered out of doors. To make sure that all is well inside, remove the roofs occasionally after rains and see that things inside are in good condition. If there is a leak either use paint or putty to close it. Should the cushions or quilts in the top of the hive be wet replace them with dry ones. It is a good plan to use two or three thicknesses of wrapping paper between the layers of quilts or to place a cushion filled not too full with any leaves, corn shucks, chaff, cork dust or other good insulating material. The idea should be to keep the bees as cozy as possible during the winter.

Whitewashing the poultry house is excellent for cleanliness. Use only freshly slaked lime for this purpose. Never apply it until after the whole interior has been cleaned and never let the whitewash or any lime come in contact with poultry manure because its chemical action robs manure of its most valuable fertilizing substance—nitrogen. This is wasted in the air as ammonia.

At least once a month after thoroughly cleaning the poultry house spray with kresol as per directions on the bottle. This is a far safer disinfectant than carbolic acid and is fully as effective in cleansing the premises of disease germs.

Spray the interior of the poultry house, especially the cracks, the roosts and the nest boxes with kerosene to kill the mites that hide during the day in such places. At least once a month!

Wash the drinking fountains at least once a week with boiling water and a stiff whisk broom. Once a week or perhaps oftener add a few crystals of permanganate of potash to the water as an internal disinfectant—just enough to give the water a slight purplish tint.

HODGSON *Portable* HOUSES

With the approach of Spring you will want to build that house you have had in mind, and you will want to build it without having to go through the bothersome preliminary details that usually accompany building. The Hodgson Way avoids all this bother and trouble.

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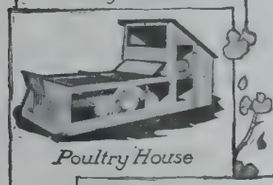
Play House


Poultry House

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When you have made your selection, send in your order, and the house already built, fitted and painted, will be shipped to you in neat, compact sections that can be erected by one or two inexperienced men in a day or two.

If you do not wish to use the house immediately, we suggest that you send in your order now, and insure prompt delivery when you are ready to have the house put up.

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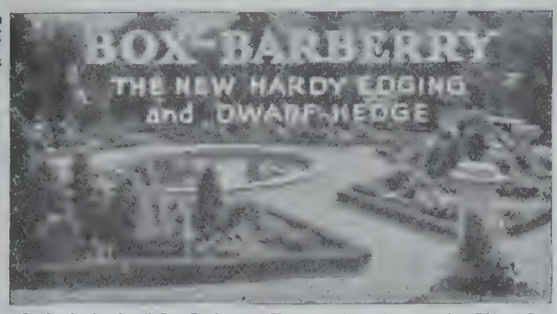
Cottage



Garden bordered with Box-Barberry. Two-year-old stock was used. Photo taken three months after planting; plants set four inches apart.

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Box-Barberry is a dwarf, upright form of the familiar Berberis Thunbergii; it is perfectly hardy, thriving wherever Berberis Thunbergii grows. **It does not** carry wheat rust.

Box-Barberry lends itself most happily to low edgings for formal gardens, when set about 4 inches apart. It also makes a beautiful low hedge when set 6 to 8 inches apart. The foliage is light green, changing in autumn to dazzling red and yellow.

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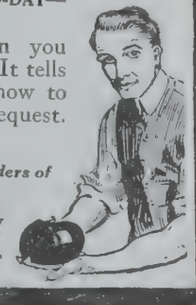

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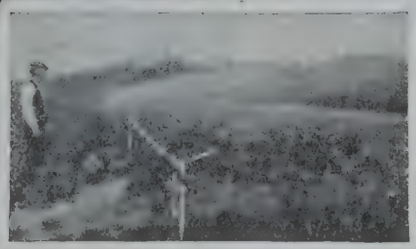
Should Sweet Corn Be Suckered?—I shall not answer this question, but merely put before the reader the experience I had with a large patch of sweet corn that was not rid of its suckers. Always I have been scrupulous to take the suckers from sweet corn. But this year the thing got ahead of me, and I let the suckers grow. I had the feeling that they would injure the crop in that they would make the main ears small, and would delay their maturing. The corn was Golden Bantam. The result was quite different. Though I cannot attribute the size of the ears to the presence of the suckers, I will say that I never gathered a finer crop of corn than I did from this half-acre patch. After the main crop had been taken, what was my surprise to find that two out of every three suckers had an ear; small, it is true, but a genuine ear. These developed well and matured evenly, supplementing the main crop greatly. I am sure that these innumerable sucker ears almost doubled the yield of the patch. In quality, this smaller corn was not inferior to the corn from the main stalks. It was small, and not always shapely; but it was *corn.* And so I ask, Should we sucker our sweet corn?—*A. Rutledge, Menersburg, Pa.*

Larkspurs and Shade.—Has any one else had an experience with Delphiniums similar to mine? I have but few plants attacked by the fungus which blackens the leaves and buds, but occasionally a plant will suddenly decay at the roots. My plants are placed so that their roots are shaded by others, and the sun does not reach them. This is recommended by most authorities as they claim Delphiniums suffer from drought if their bases are exposed. My experience seems to indicate the contrary. Has any one else had the same experience?—*Gertrude H. Smith, N. J.*



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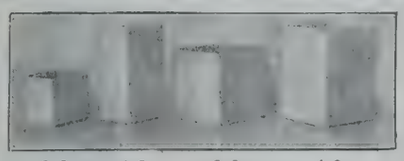

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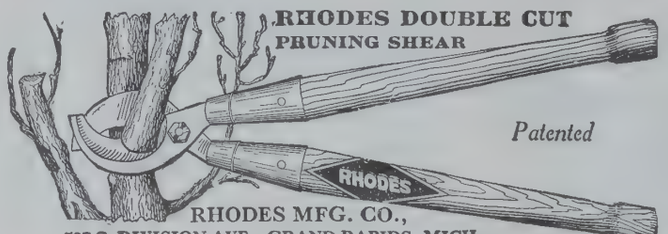

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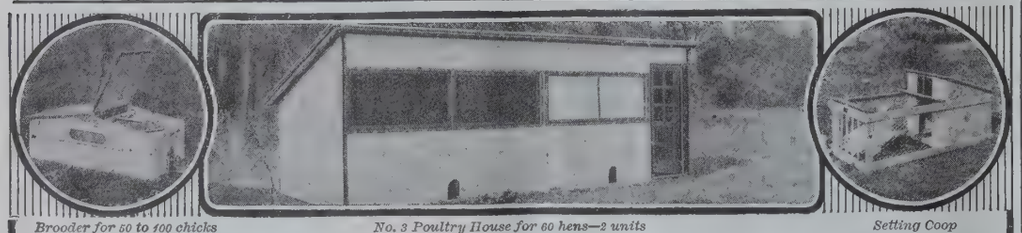

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